VPDES PERMIT PROGRAM FACT SHEET
FILE NO: 257

This document gives pertinent information concerning the VPDES Permit listed below. This permit is being processed as a **MAJOR INDUSTRIAL** permit.

1. **PERMIT NO.: VA0003433** **EXPIRATION DATE: December 11, 2012**

2. **FACILITY NAME AND LOCAL MAILING ADDRESS**

Hercules, Incorporated
27123 Shady Brook Trail
Courtland, VA 23837

FACILITY LOCATION ADDRESS (IF DIFFERENT)

Same

CONTACT AT FACILITY:
NAME: Andrew B. Chapman
TITLE: Plant Manager
PHONE: (757) 562-3121

CONTACT AT LOCATION ADDRESS
NAME: Sean Maconaghy
TITLE: Safety Health & Environmental Manager
PHONE: (757) 562-3121 ext. 176

3. **OWNER CONTACT:**
NAME: Andrew B. Chapman
TITLE: Plant Manager
COMPANY NAME: (same)
ADDRESS:
PHONE: (757) 562-3121

CONSULTANT CONTACT: NA
NAME:
FIRM NAME:
ADDRESS:

PHONE: ( )

4. **PERMIT DRAFTED BY:** DEQ, Water Permits, Regional Office

Permit Writer(s): Sauer Date(s): 4/09 - 10/09
Reviewed By: H. Melonathy Date(s): 10/28/2009

5. **PERMIT ACTION:**

( ) Issuance ( ) Reissuance ( ) Revoke & Reissue ( ) Owner Modification
(X) Board Modification ( ) Change of Ownership/Name [Effective Date:]

6. **SUMMARY OF SPECIFIC ATTACHMENTS LABELED AS:**

Attachment 1	Site Inspection Report/Memorandum
Attachment 2	Discharge Location/Topographic Map
Attachment 3	Schematic/Plans & Specs/Site Map/Water Balance
Attachment 4	TABLE I - Discharge/Outfall Description
Attachment 5	TABLE II - Effluent Monitoring/Limitations
Attachment 6	Effluent Limitations/Monitoring Rationale/Suitable Data/Antidegradation/Antibacksliding
Attachment 7	Special Conditions Rationale
Attachment 8	Toxics Monitoring/Toxics Reduction/WET Limit Rationale
Attachment 9	Material Stored
Attachment 10	Receiving Waters Info./Tier Determination/303(d) Listed Segments
Attachment 11	TABLE III(a) and TABLE III(b) - Change Sheets
Attachment 12	NPDES Industrial Permit Rating Worksheet and EPA Permit Checklist
Attachment 13	Chronology Sheet
Attachment 14	Pertinent Correspondence
Attachment 15	Public Participation

APPLICATION COMPLETE: October 26, 2009 upon notification from the permittee that RO discharge will be a new sources to outfall 002 to be included in this modification.

7. **PERMIT CHARACTERIZATION**: (Check as many as appropriate)

(X) Existing Discharge
(X) Proposed Discharge
( ) Municipal
SIC Code(s)
(X) Industrial
SIC Code(s)2861, 2869, 2899
( ) POTW
( ) PVOTW
(X) Private
( ) Federal
( ) State
( ) Publicly-Owned Industrial

(X) Effluent Limited
(X) Water Quality Limited
(X) WET Limit
( ) Interim Limits in Permit
( ) Interim Limits in Other Document
( ) Compliance Schedule Required
( ) Site Specific WQ Criteria
( ) Variance to WQ Standards
( ) Water Effects Ratio
( ) Discharge to 303(d) Listed Segment
(X) Toxics Management Program Required
( ) Toxics Reduction Evaluation
(X) Storm Water Management Plan
( ) Pretreatment Program Required
(X) Possible Interstate Effect
( ) CBP Significant Dischargers List

8. **RECEIVING WATERS CLASSIFICATION**: River basin information.

Outfall No(s): 002, 201, 202 (new internal outfall), 902

Receiving Stream:	Nottoway River
River Mile:	15.74
Basin:	Chowan and Dismal Swamp
Subbasin:	Chowan River
Section:	1
Class:	II
Special Standard(s):	NEW-21
Tidal:	YES
7-Day/10-Year Low Flow:	19.38 MGD
1-Day/10-Year Low Flow:	18.09 MGD
30-Day/5-Year Low Flow:	42 MGD
Harmonic Mean Flow:	203 MGD

Outfall No(s): 003, 004, 005, 006 (004-old condensate ditch; 005-natural swale; 006-old outfall 001; 004-006 are existing storm water discharges newly addressed in the permit)

Receiving Stream:	Wills Gut to the Nottoway River
River Mile:	15.79
Basin:	Chowan and Dismal Swamp
Subbasin:	Chowan River
Section:	2b
Class:	III
Special Standard(s):	none
Tidal:	NO
7-Day/10-Year Low Flow:	0 MGD
1-Day/10-Year Low Flow:	0 MGD
30-Day/5-Year Low Flow:	0 MGD
Harmonic Mean Flow:	0 MGD

9. **FACILITY DESCRIPTION:** Describe the type facility from which the discharges originate.

EXISTING industrial discharge resulting from the following operations: manufacturing of paper sizing agents and organic peroxide. Note - the processes of refining of crude tall oil into rosin acid and fatty acid products and upgrading of fatty acids were discontinued in 2008 and are the subject of part of this modification.

10. **LICENSED OPERATOR REQUIREMENTS:** ( ) No (X) Yes Class: II

11. **RELIABILITY CLASS:** Industrial Facility - NA

12. **SITE INSPECTION DATE:** 4/2/08 **REPORT DATE:** 4/16/08

Performed By: J. LaCroix

SEE ATTACHMENT 1

13. **DISCHARGE(S) LOCATION DESCRIPTION:** Provide USGS Topo which indicates the discharge location, significant (large) discharger(s) to the receiving stream, water intakes, and other items of interest.

Name of Topo: Courtland and Franklin topos Quadrant No.: 6A & 5B **SEE ATTACHMENT 2**

14. **ATTACH A SCHEMATIC OF THE WASTEWATER TREATMENT SYSTEM(S) [IND. & MUN.]. FOR INDUSTRIAL FACILITIES, PROVIDE A GENERAL DESCRIPTION OF THE PRODUCTION CYCLE(S) AND ACTIVITIES. FOR MUNICIPAL FACILITIES, PROVIDE A GENERAL DESCRIPTION OF THE TREATMENT PROVIDED.**

SEE ATTACHMENT 3 (CAN ALSO REFERENCE TABLE I)

15. **DISCHARGE DESCRIPTION:** Describe each discharge originating from this facility.

SEE ATTACHMENT 4

16. **COMBINED TOTAL FLOW:**

TOTAL: 5 MGD (for public notice)

PROCESS/COOLING WATER FLOW: 4.9 MGD (IND.)

NONPROCESS/RAINFALL DEPENDENT FLOW: 0.1(Est.)

17. **STATUTORY OR REGULATORY BASIS FOR EFFLUENT LIMITATIONS AND SPECIAL CONDITIONS:** (Check all which are appropriate)

- X State Water Control Law
- X Clean Water Act
- X VPDES Permit Regulation (9 VAC 25-31-10 et seq.)
- X EPA NPDES Regulation (Federal Register)
- X EPA Effluent Guidelines (40 CFR 133 or 400 - 471)
- X Water Quality Standards (9 VAC 25-260-5 et seq.)
- _____ Wasteload Allocation from a TMDL or River Basin Plan

18. **EFFLUENT LIMITATIONS/MONITORING:** Provide all limitations and monitoring requirements being placed on each outfall.

SEE TABLE II - ATTACHMENT 5

19. **EFFLUENT LIMITATIONS/MONITORING RATIONALE**: Attach any analyses of an outfall by individual toxic parameter. As a minimum, it will include: statistics summary (number of data values, quantification level, expected value, variance, covariance, 97th percentile, and statistical method); wasteload allocation (acute, chronic and human health); effluent limitations determination; input data listing. Include all calculations used for each outfall and set of effluent limits and those used in any model(s). Include all calculations/documentation of any antidegradation or anti-backsliding issues in the development of any limitations; complete the review statements below. Provide a rationale for limiting internal waste streams and indicator pollutants. Attach chlorine mass balance calculations, if performed. Attach any additional information used to develop the limitations, including any applicable water quality standards calculations (acute, chronic and human health).

OTHER CONSIDERATIONS IN LIMITATIONS DEVELOPMENT:

VARIANCES/ALTERNATE LIMITATIONS: Provide justification or refutation rationale for requested variances or alternatives to required permit conditions/limitations. This includes, but is not limited to: waivers from testing requirements; variances from technology guidelines or water quality standards; WER/translator study consideration; variances from standard permit limits/conditions.

N/A

SUITABLE DATA: In what, if any, effluent data were considered in the establishment of effluent limitations and provide all appropriate information/calculations.

All suitable effluent and lagoon data were reviewed.

ANTIDEGRADATION REVIEW: Provide all appropriate information/calculations for the antidegradation review.

The receiving stream has been classified as tier 2; therefore, no significant degradation of the existing water quality will be allowed. See antidegradation calculations/determinations.

ANTIBACKSLIDING REVIEW: Indicate if antibacksliding applies to this permit and, if so, provide all appropriate information.

There are no backsliding issues to address in this permit (i.e., limits as stringent or more stringent when compared to the previous permit).

20. **SPECIAL CONDITIONS RATIONALE**: Provide a rationale for each of the permit's special conditions.

SEE ATTACHMENT 7

21. **TOXICS MONITORING/TOXICS REDUCTION AND WET LIMIT SPECIAL CONDITIONS RATIONALE**: Provide the justification for any toxics monitoring program and/or toxics reduction program and WET limit.

SEE ATTACHMENT 8

22. **SLUDGE DISPOSAL PLAN**: Provide a description of the sludge disposal plan (e.g., type sludge, treatment provided and disposal method). Indicate if any of the plan elements are included within the permit.

Waste sludge is de-watered on a belt filter press for disposal at a landfill.

23. **MATERIAL STORED**: List the type and quantity of wastes, fluids, or pollutants being stored at this facility. Briefly describe the storage facilities and list, if any, measures taken to prevent the stored material from reaching State waters.

SEE ATTACHMENT 9

24. **RECEIVING WATERS INFORMATION**: Refer to the State Water Control Board's Water Quality Standards [e.g., River Basin Section Tables (9 VAC 25-260-5 et seq.). **Use 9 VAC 25-260-140 C (introduction and numbered paragraph) to address tidal waters where fresh water standards would be applied or transitional waters where the most stringent of fresh or salt water standards would be applied.** Attach any memoranda or other information which helped to develop permit conditions (i.e. tier determinations, PReP complaints, special water quality studies, STORET data and other biological and/or chemical data, etc.

SEE ATTACHMENT 10

25 305(b)/303(d) Listed Segments: Indicate if the facility discharges to a segment that is listed on the current 303(d) list and, if so, provide all appropriate information/calculations.

TMDLs are not included in this permit as the receiving waters are not listed on the 303(d) list.

SEE ATTACHMENT 10

26. **CHANGES TO PERMIT**: Use **TABLE III(a)** to record any changes from the previous permit and the rationale for those changes. Use **TABLE III(b)** to record any changes made to the permit during the permit processing period and the rationale for those changes [i.e., use for comments from the applicant, VDH, EPA, other agencies and/or the public where comments resulted in changes to the permit limitations or any other changes associated with the special conditions or reporting requirements].

SEE ATTACHMENT 11

27. **NPDES INDUSTRIAL PERMIT RATING WORKSHEET:**

TOTAL SCORE: 100 **SEE ATTACHMENT 12**

28. **DEQ PLANNING COMMENTS RECEIVED ON DRAFT PERMIT**: Document any comments received from DEQ planning.

The discharge is not addressed in any planning document but will be included when the plan is updated.

29. **PUBLIC PARTICIPATION:** Document comments/responses received during the public participation process. If comments/responses provided, especially if they result in changes to the permit, place in the attachment.

VDH/DSS COMMENTS RECEIVED ON DRAFT PERMIT: Document any comments received from the Virginia Dept. of Health and the Div. of Shellfish Sanitation and noted how resolved.

By letter dated May 21, 2007, the VDH provided the following comments: The raw water intake for the City of Norfolk is located six miles upstream of the discharge. This should be a sufficient distance to minimize the impacts of the discharge. VDH recommends a minimum reliability class III for this facility. They do not object to the discharge.

The DSS has no comments on the application permit, by letter dated June 5, 2007 (project does not affect shellfish waters).

EPA COMMENTS RECEIVED ON DRAFT PERMIT: Document any comments received from the U.S. Environmental Protection Agency and noted how resolved.

EPA has no objections to the adequacy of the draft permit.

There was discussion with EPA RCRA and Permit staff during the application review and permit drafting time period concerning the discharge of the lagoon wastewater. Both the RCRA and the Permitting sections were involved in the permitting process for this modification.

SEE ATTACHMENT 14

ADJACENT STATE COMMENTS RECEIVED ON DRAFT PERMIT: Document any comments received from an adjacent state and noted how resolved.

The draft permit was sent to North Carolina and no comments were received.

OTHER AGENCY COMMENTS RECEIVED ON DRAFT PERMIT: Document any comments received from any other agencies (e.g., VIMS, VMRC, DGIF, etc.) and noted how resolved.

Not Applicable.

OTHER COMMENTS RECEIVED FROM RIPARIAN OWNERS/CITIZENS ON DRAFT PERMIT: Document any comments received from other sources and note how resolved.

The application and draft permit have received public notice in accordance with the VPDES Permit Regulation, and one comment was received. The Blackwater/Nottoway Riverkeeper, Mr. Jeff Turner, submitted a letter supporting the permit modification and the new limits in the permit.

PUBLIC NOTICE INFORMATION: Comment Period: Start Date 12/2/09
End Date 1/4/10

Persons may comment in writing or by e-mail to the DEQ on the proposed issuance/reissuance/modification of the permit within 30 days from the date of the first notice. Address all comments to the contact person listed below. Written or e-mail comments shall include the name, address, and telephone number of the writer, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The Director of the DEQ may decide to hold a public hearing if public response is significant. Requests for public hearings shall state the reason why a hearing is requested, the nature of the issues proposed to be raised in the public hearing and a brief explanation of how the requestor's interests would be directly and adversely affected by the proposed permit action.

All pertinent information is on file and may be inspected, and arrangements made for copying by contacting Mark Sauer at: Department of Environmental Quality (DEQ), Tidewater Regional Office, 5636 Southern Boulevard, Virginia Beach, VA 23462. Telephone: 757-518-2105 E-mail: mark.sauer@deq.virginia.gov

Following the comment period, the Board will make a determination regarding the proposed issuance/reissuance/modification. This determination will become effective, unless the Director grants a public hearing. Due notice of any public hearing will be given.

30. **ADDITIONAL FACT SHEET COMMENTS/PERTINENT INFORMATION:**

The permit modification in 2009 consists of the following:

1. Recalculating federal guideline effluent limitations for outfall 201 based on the deletion of the tall oil process at the facility. Limits are presented in Attachment 5; rationales and calculations are presented in Attachment 6.
2. Reclassifying the Aquapel process from subcategory F to subcategory C under 40 CFR 454 and recalculating effluent guideline limits based on the reclassification. Limits are presented in Attachment 5; rationales and calculations are presented in Attachment 6.
3. Adding a new internal outfall 202 to address the discharge of wastewater holding lagoon and sludge pit dewatering under an EPA-lead RCRA corrective action. Limits are presented in Attachment 5; rationales and calculations are presented in Attachment 6.
4. Adding three new storm water outfalls and associated monitoring based on inspections at the facility identifying the storm water discharges.
5. Adding and revising Part I.D. storm water conditions to address the new storm water outfalls.
6. Adding and revising language in the WET limit section to address the effect of biological pathogens on the test organisms.
7. Adding wording to the O&M Manual Special Condition to require the Manual to address proper procedures for solvent handling and storage, per a request from EPA. Adding wording to the O&M Manual Special Condition to address the new reverse osmosis system at the facility.
8. Adding the discharge of reject water and occasional backwash water from a reverse osmosis unit to the sources contributing to outfall 002. This discharge will enter the discharge ditch prior to the sampling point for outfall 002 at a rate of approximately 65,000 gallons per day. Additional limitations for dissolved oxygen at outfall 002 are included in the permit in accordance with Agency guidance and water quality standards.
9. Adding a special condition to address any chemicals that may be used in the reverse osmosis system.

There are no changes to effluent limitations or monitoring conditions for outfalls 902 and 003 with this modification. There are no changes to Part C, Other Special Conditions, with this modification.

ATTACHMENT 1

SITE INSPECTION REPORT/MEMORANDUM

Facility:	HERCULES, INC.
County/city:	SOUTHAMPTON COUNTY

VPDES NO.	VA0003433

DEPARTMENT OF ENVIRONMENTAL QUALITY
WASTEWATER FACILITY
INSPECTION REPORT
PART 1

Inspection date:	**April 2, 2008**	Date form completed:	**April 16, 2008**
Inspection by:	**Jennifer J. LaCroix**	Inspection agency:	**DEQ/TRO**
Time spent:	**14 hours**	Announced Inspection:	[ ] Yes [X] No
Reviewed by: **Kenneth T. Raum** KTR		Photographs taken at site?	[X] Yes [ ] No
Present at inspection:	**Roy Hart – SHE Manager, Chris Moniz – Safety/Environmental Engineer, Mark Sauer & Deanna Austin - DEQ**		

FACILITY TYPE:	FACILITY CLASS:
( ) Municipal	(X) Major
(X) Industrial	( ) Minor
( ) Federal	( ) Small
( ) VPA/NDC	( ) High Priority ( ) Low Priority

TYPE OF INSPECTION:					
Routine	X	Reinspection		Compliance/assistance/complaint	

Date of previous inspection:	**October 24, 2006**	Agency:	**DEQ/TRO**

Population Served:	**N/A**	Connections Served:	**N/A**

Last Month Average: Influent	BOD_5 (mg/l)		TSS (mg/l)		Flow (MGD)			
	Other:							
Last Month Average: Effluent: Outfall 002 February 2008	BOD_5 (mg/l)	**< QL**	TP (mg/l)	**1.26**	Flow (MGD)	**5.60**	Total N (mg/l)	**0.23**
	Other:							
Last Quarter Average: Effluent: Outfall 201 February 2008	BOD_5 (mg/l)	**63**	TSS (mg/l)	**139**	Flow (MGD)	**0.240**		
	Other:							

Data verified in preface:	Updated?		NO CHANGES?	X
Has there been any new construction?	YES		NO	X
If yes, were the plans and specifications approved?	YES		NO	N/A
DEQ approval date:				

COPIES TO: (x) DEQ/TRO; (x) DEQ/OWCP; (x) OWNER; ( ) OPERATOR; ( ) EPA-Region III; ( ) Other:

PLANT OPERATION AND MAINTENANCE

1.	Class/number of licensed operators:	I	0	II	1	III	0	IV	0	Trainee	2		
2.	Hours per day plant manned?	24 hours/day, 7 days/week											
3.	Describe adequacy of staffing	GOOD		AVERAGE		POOR	X						
4.	Does the plant have an established program for training personnel	YES	X	NO									
5.	Describe the adequacy of training	GOOD	X	AVERAGE		POOR							
6.	Are preventative maintenance tasks scheduled	YES	X	NO									
7.	Describe the adequacy of maintenance	GOOD	X	AVERAGE		POOR							
8.	Does the plant experience any organic/hydraulic overloading?	YES		NO	X								
	If yes, identify cause/impact on plant												
9.	Any bypassing since last inspection?	YES		NO	X								
10.	Is the standby electrical generator operational? **see comments below.**	YES		NO		NA	X						
11.	How often is the standby generator exercised?	N/A											
	Power transfer switch?	N/A		ALARM SYSTEM?	N/A								
12.	When was the cross connection last tested on the potable supply?	N/A											
13.	Is the STP alarm system operational?	YES		NO		NA	X						
14.	Is sludge disposed in accordance with an approved SMP	YES		NO		NA	X						
15.	Is septage received by the facility?	YES		NO	X								
	Is septage loading controlled?	YES		NO		NA	X						
	Are records maintained?	YES		NO		NA	X						

OVERALL APPEARANCE OF FACILITY	GOOD		AVERAGE	X	POOR	

COMMENTS:	**#3. Staffing does meet minimum permit requirements. However, retaining only one licensed operator without another licensed operator for back up purposes is poor practice and heightens the risk of violating permit requirements.** **#10. A generator is not available on site; though there are back-up systems for pumping wastewater and captured storm water. The back-up systems include diesel power pumps and pneumatic pumps with an air compressor.** **Sludge is no longer land applied and is belt pressed and sent to a landfill for disposal.**

PLANT RECORDS

	WHICH OF THE FOLLOWING RECORDS DOES THE PLANT MAINTAIN?							
	Operational logs for each process unit	YES	X	NO		NA	
	Instrument maintenance and calibration	YES	X	NO		NA	
	Mechanical equipment maintenance	YES	X	NO		NA	
1.	Industrial waste contribution (municipal facilities)	YES		NO		NA	X

	WHAT DOES THE OPERATIONAL LOG CONTAIN					
	Visual Observations	X	Flow Measurement	X	Laboratory Results	X
2.	Process Adjustments	X	Control Calculations	X	Other?	

COMMENTS:

	WHAT DO THE MECHANICAL EQUIPMENT RECORDS CONTAIN?					NA
	MFG. Instructions	X	As Built Plans/specs	X	Spare Parts Inventory	X
3.	Lube Schedules	X	Other?		Equipment/parts Suppliers	

COMMENTS:

	WHAT DO INDUSTRIAL WASTE CONTRIBUTION RECORDS CONTAIN? (MUNICIPAL)			NA	X
	Waste Characteristics		Impact on Plant		
4.	Location and Discharge Types		Other?		

COMMENTS:

	WHICH OF THE FOLLOWING RECORDS ARE AT THE PLANT & AVAILABLE TO PERSONNEL?					NA
	Equipment Maintenance Records	X	Industrial Contributor Records			
5.	Operational Log	X	Sampling/testing Records	X	Instrumentation Records	X

6.	Records not normally available to personnel at their location:	N/A				
7.	Were the records reviewed during the inspection?	YES	X	NO		
8.	Are records adequate and the O&M manual current? **see comments below**	YES	X	NO		
9.	Are the records maintained for the required 3-year time period	YES	X	NO		

COMMENTS: **#8. The O & M manual, dated October 2004, is in the process of being updated currently and is projected to be completed by May 15, 2008. However, when the tall oil plant shuts down (projected to be May 31st), the manual will need to reflect this change and its effects at the plant.**

The Storm Water Pollution Prevention Plan (SWP3), dated June 2007, will also need to be updated when the tall oil plant shuts down. See Inspection Comments section for further discussion pertaining to the SWP3.

SAMPLING

1.	Are sampling locations capable of providing representative samples?				YES	X	NO	
2.	Do sample types correspond to VPDES permit requirements?				YES	X	NO	
3.	Do sampling frequencies correspond to VPDES permit requirements?				YES	X	NO	
4.	Does plant maintain required records of sampling?				YES	X	NO	
5.	Are composite samples collected in proportion to flow?	YES	X	NO		NA		
6.	Are composite samples refrigerated during collection?	YES	X	NO		NA		
7.	Does the plant run operational control tests?	YES	X	NO		NA		

COMMENTS:

TESTING

	Who performs the testing?	Plant	X	Central Lab		Commercial Lab	X
1.	Name: **Universal Laboratories, Hampton, VA**						

IF THE PLANT PERFORMS ANY TESTING, PLEASE COMPLETE QUESTIONS 2-4

2.	Which total residual chlorine method is used?	**N/A**					
3.	Does plant appear to have sufficient equipment to perform required tests?	YES	X	NO			
4.	Does testing equipment appear to be clean and/or operable?	YES	X	NO			

COMMENTS: **See laboratory report for further discussion.**

FOR INDUSTRIAL FACILITIES WITH TECHNOLOGY BASED LIMITS ONLY

1.	Is the production process as described in permit application? If no, describe changes in comments section.	YES		NO		NA	X
2.	Are products/production rates as described in the permit application? If no list differences in comments section.	YES		NO		NA	X
3.	Has the Agency been notified of the changes and their impact on plant effluent? Date agency notified:	YES		NO		NA	X

COMMENTS:

	PROBLEMS IDENTIFIED AT LAST INSPECTION:	CORRECTED	NOT CORRECTED
	Conduct site inspections specific for storm water pollution prevention.	X	
	Conduct Comprehensive Site Compliance Evaluation.	X	

SUMMARY

INSPECTION COMMENTS:

The Hercules facility is made up of multiple plants that coexist on the same site. The three companies involved are Hercules, GEO Specialty Chemicals, and Eastman.

The Eastman Tall Oil Plant is preparing to close and is scheduled for complete closure by the end of May 2008. This date could be postponed slightly depending on the amount of materials remaining in the plant. The closure of the tall oil process should considerably decrease the flow into the waste water treatment plant as well as decrease the solids (oil) entering the treatment plant. The use of the "carwash" should also be greatly decreased or potentially eliminated due to the reduction in rail cars to and from the facility.

A brief site survey was conducted during the inspection. The majority of the site was located within bermed containment and spill kits were placed throughout the entire facility. Oil absorbent booms were secured in multiple locations along the ditch near the office and along the ditch that led to outfall 002. Each outfall was observed. Outfall 003 had no discharge while 201, 002, and 902 did have a discharge at the time of the inspection. Algae appears to be an issue for the facility at outfall 201.

During the site survey, an area adjacent to the rail tracks appeared to be a storage area for scaffolding pieces and empty drums. Although the drums in this area were capped, a few were lying on their side and all of them had been placed directly on the ground. The buckets containing scaffolding clamps and brackets were rusting on top of the pallets and the rust was collecting on the ground. Changes should be implemented in this area in order to improve the materials management and good housekeeping practices.

The waste water treatment plant was also observed during the inspection and appears to be continuing to improve its treatment processes and the plant effluent.

The Storm Water Pollution Prevention Plan (SWP3), revised June 2007, was available and reviewed on site. The plan included items required by the permit and was mostly current. However, the list of spills and leaks did not contain any spills that had occurred in 2007 and needed to be updated.

Corresponding records were also available and reviewed. A Non-Storm Water Discharge Assessment and Certification was documented in November 2007 and included visual inspections of outfalls 003 and 902(002). Training was last performed May 2007 to discuss storm water pollution prevention and spill response among other topics. A Comprehensive Site Compliance Evaluation (CSCE) was conducted in November 2007 and documented compliance at outfalls 003 and 902. This evaluation should also include inspection of the scaffolding storage area adjacent to the tracks because storm water runoff from this area could potentially affect outfall 003. In this case, the CSCE should have noted the drums lying on the ground and rusted buckets.

Routine Site Inspections are performed in a multitude of ways at the facility. Individual plant personnel conduct inspections of each specific plant area in addition to the inspections of the entire facility performed by Hercules environmental staff. During all of these inspections (daily, weekly, monthly, and quarterly), the following itmes are inspected: tanks, secondary containments, spills kits, valves, outfalls, diking, and storm water conveyances. Good housekeeping is also checked during each plant's safety inspection. The routine site inspections should also include storage areas such as the one noted with scaffolding materials and drums. Some of the quarterly inspections for the Vul-Cup area secondary containment noted on the annual quarter when the inspection was performed and should note the actual date of the inspection. Due to the massive quantity of inspections documented, only representative samples have been included with this report.

Quarterly Visual Exams of Storm Water Quality are performed by the facility but are not properly completed according to permit requirements. A visual was conducted at outfall 003 on 1/17/08 but a discharge was not observed. No discharge was recorded, but some sections of the qualitative monitoring report were filled out

	without a discharge viewed to provide the data. (i.e. Odor was recorded as "none" and the questions for presence of foam or oil sheen were both answered with no.) Rain data included with the visuals provided several occasions in February when there had been a rainfall during which outfall 003 was checked and a discharge had occurred during at least two of them. However, a qualitative report was not used to document the discharge observed during those events. An outfall must be visually checked for a discharge multiple times during every qualifying rain event that occurs during a calendar quarter before "no discharge" can be documented for the Quarterly Visual Exam. It is not required to perform monitoring at every outfall during the same storm event, but conducting as much monitoring/sampling as is possible during the earliest qualifying storm event is always recommended.
	The entire facility was found to be clean and well maintained.

COMPLIANCE RECOMMENDATIONS FOR ACTION:	
	Update SWP3 – spills and leaks section.
	Include the outside storage area adjacent to the rail tracks in routine site inspections and properly date inspection records.
	Perform Quarterly Visuals (qualitative monitoring) per the permit requirements and document each time an outfall is observed without a discharge during a qualifying rain event.
	After the Tall Oil Processing is shut down completely, review and revise the SWP3, the O & M manual, and inspection records appropriately.

ATTACHMENT 2

DISCHARGE LOCATION/TOPOGRAPHIC MAP

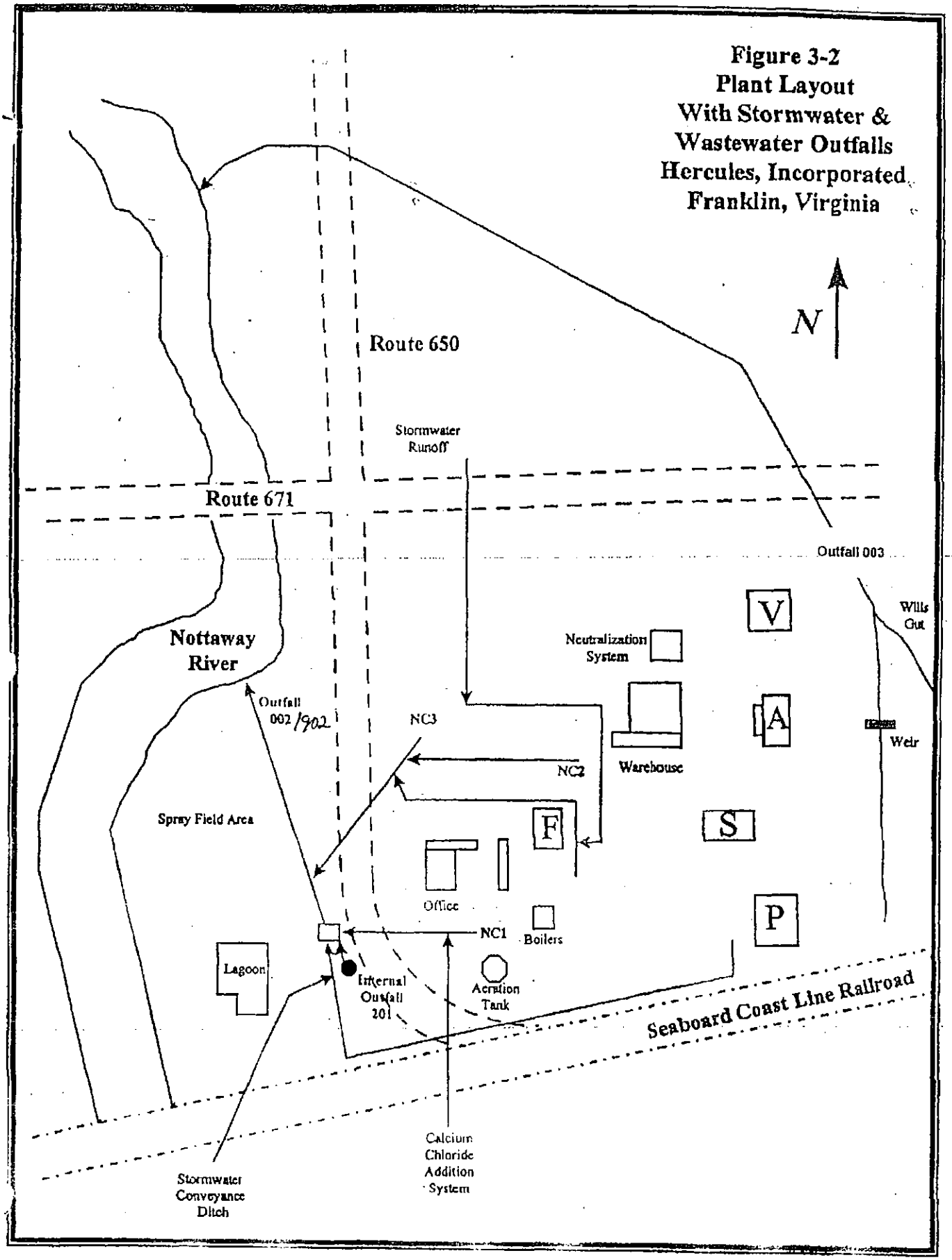
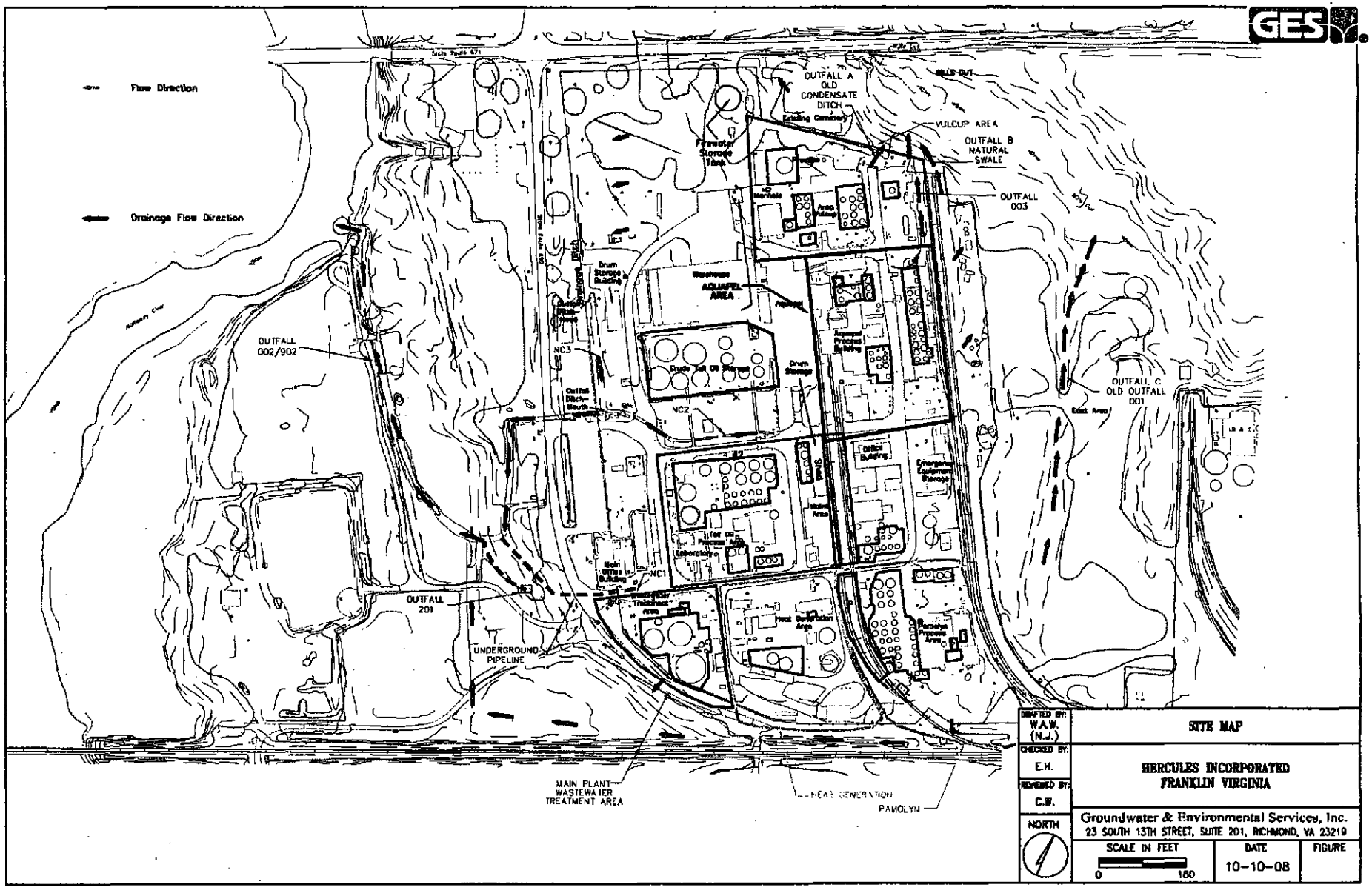
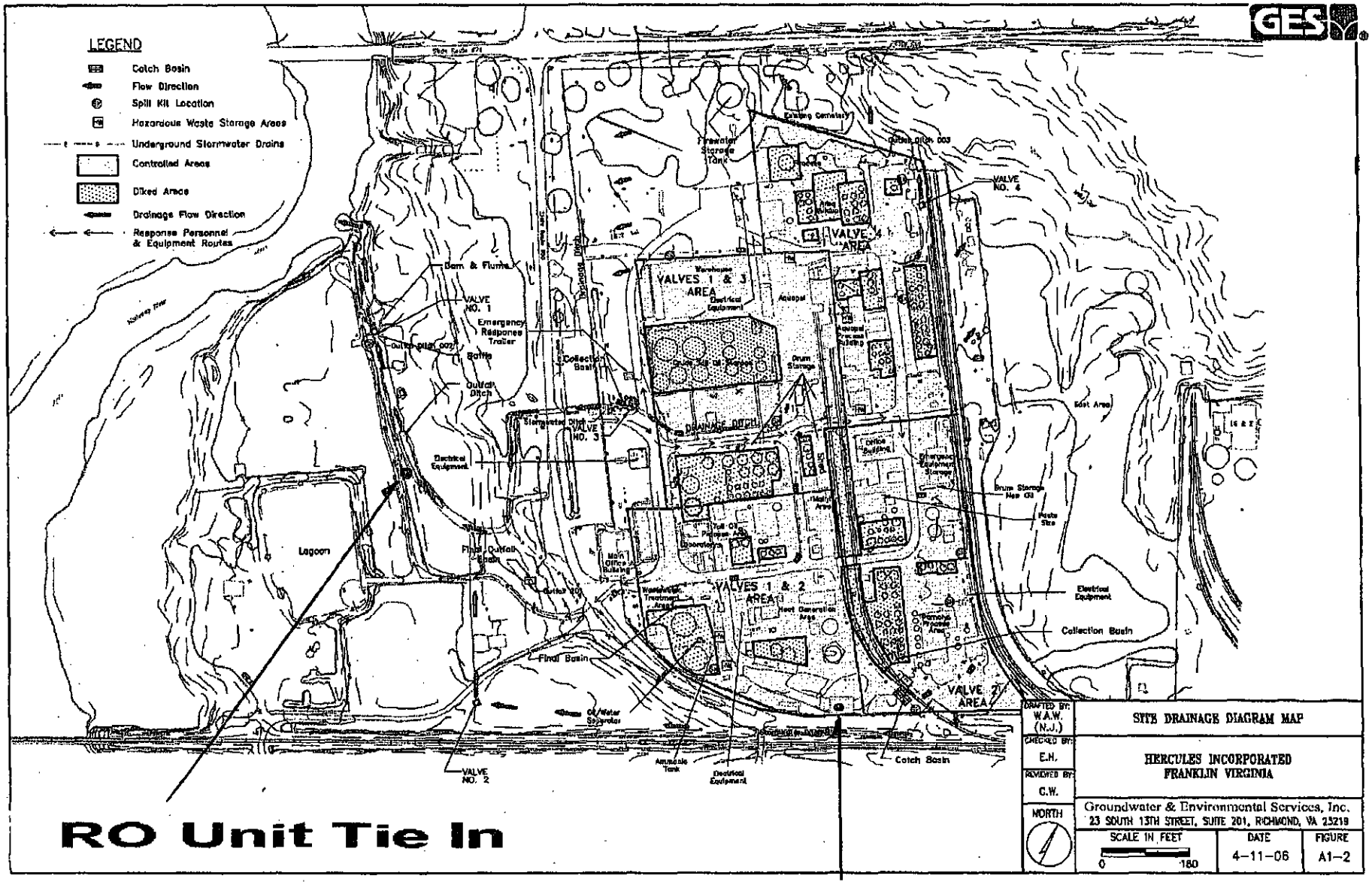


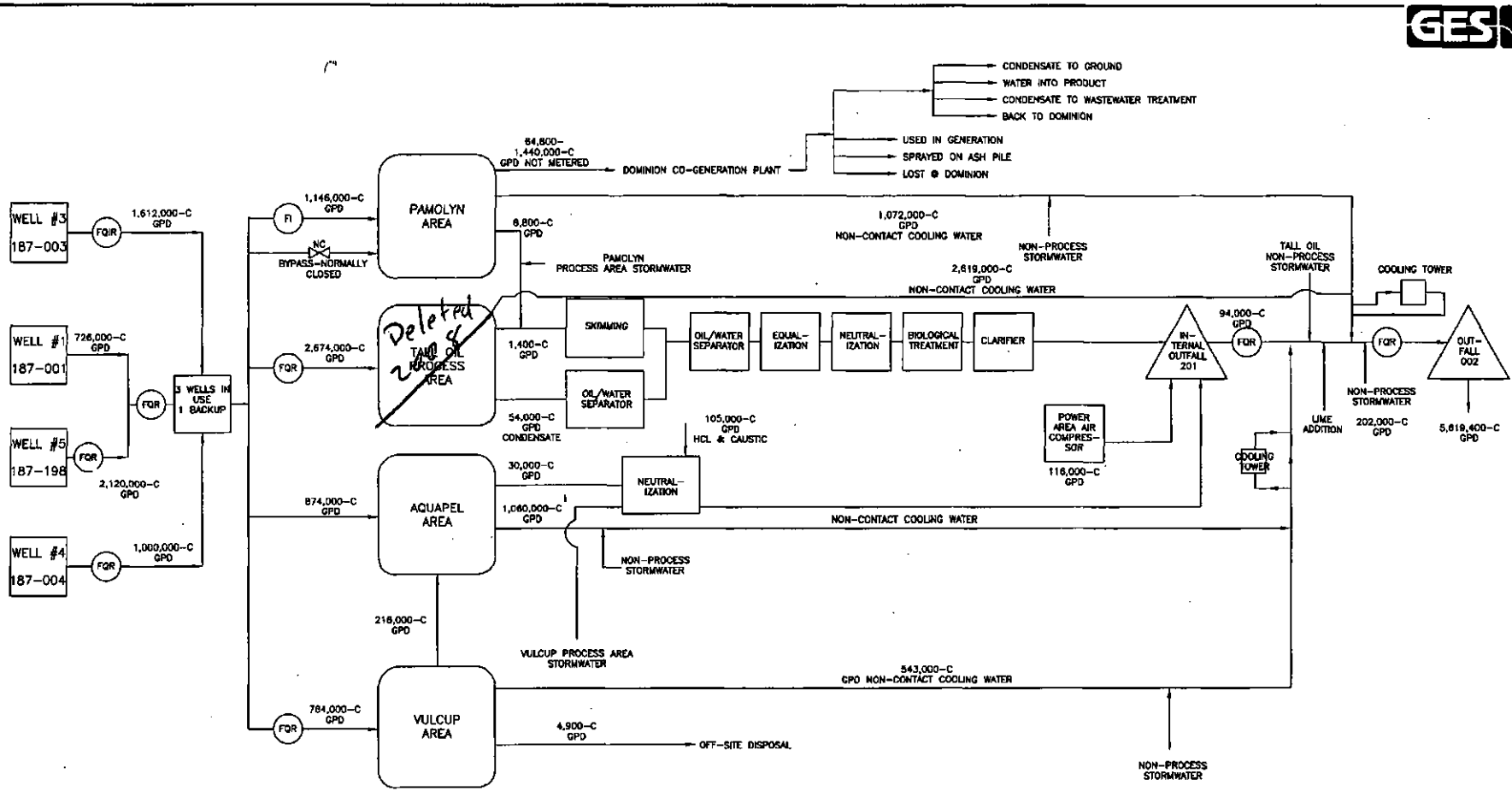
Figure 3-2
Plant Layout
With Stormwater &
Wastewater Outfalls
Hercules, Incorporated
Franklin, Virginia
N
Route 650
Stormwater
Runoff
Route 671
Outfall 003
Nottaway
River
Outfall
002 /902
NC3
NC2
Neutralization
System
Warehouse
V
A
F
S
P
Wills
Cut
Weir
Spray Field Area
Office
NC1
Boilers
Lagoon
Internal
Outfall
201
Aeration
Tank
Seaboard Coast Line Railroad
Calcium
Chloride
Addition
System
Stormwater
Conveyance
Ditch


Flow Direction
Drainage Flow Direction
OUTFALL A
OLD CONDENSATE
DITCH
VULCUP AREA
OUTFALL B
NATURAL
SWALE
OUTFALL
003
OUTFALL
002/902
OUTFALL C
OLD OUTFALL
001
OUTFALL
201
UNDERGROUND
PIPELINE
MAIN PLANT
WASTEWATER
TREATMENT AREA
PAMOLYN
NC1
NC2
NC3
DRAFTED BY: W.A.W. (N.J.)
CHECKED BY: E.H.
REVIEWED BY: C.W.
NORTH
SITE MAP
HERCULES INCORPORATED
FRANKLIN VIRGINIA
Groundwater & Environmental Services, Inc.
23 SOUTH 13TH STREET, SUITE 201, RICHMOND, VA 23219
SCALE IN FEET
0
180
DATE
10-10-08
FIGURE


LEGEND
Catch Basin
Flow Direction
Spill Kit Location
Hazardous Waste Storage Areas
Underground Stormwater Drains
Controlled Areas
Diked Area
Drainage Flow Direction
Response Personnel & Equipment Routes
VALVES 1 & 3 AREA
VALVES 1 & 2 AREA
VALVE AREA
VALVE NO. 1
VALVE NO. 2
VALVE NO. 3
VALVE NO. 4
Dam & Flume
Emergency Response Trailer
Collection Basin
Outfall Ditch
Drainage Ditch
Lagoon
Final Basin
Final Outfall Basin
Firewater Storage Tank
Existing Cemetery
Outfall Ditch 003
Drum Storage
Drum Storage Haz Ww
Waste Site
Electrical Equipment
Catch Basin
Amsdale Tank
Oil/Water Separator
RO Unit Tie In
RO Unit Location
DRAFTED BY: W.A.W. (N.J.)
CHECKED BY: E.H.
REVIEWED BY: C.W.
NORTH
SITE DRAINAGE DIAGRAM MAP
HERCULES INCORPORATED
FRANKLIN VIRGINIA
Groundwater & Environmental Services, Inc.
23 SOUTH 13TH STREET, SUITE 201, RICHMOND, VA 23219
SCALE IN FEET
0
160
DATE
4-11-06
FIGURE
A1-2

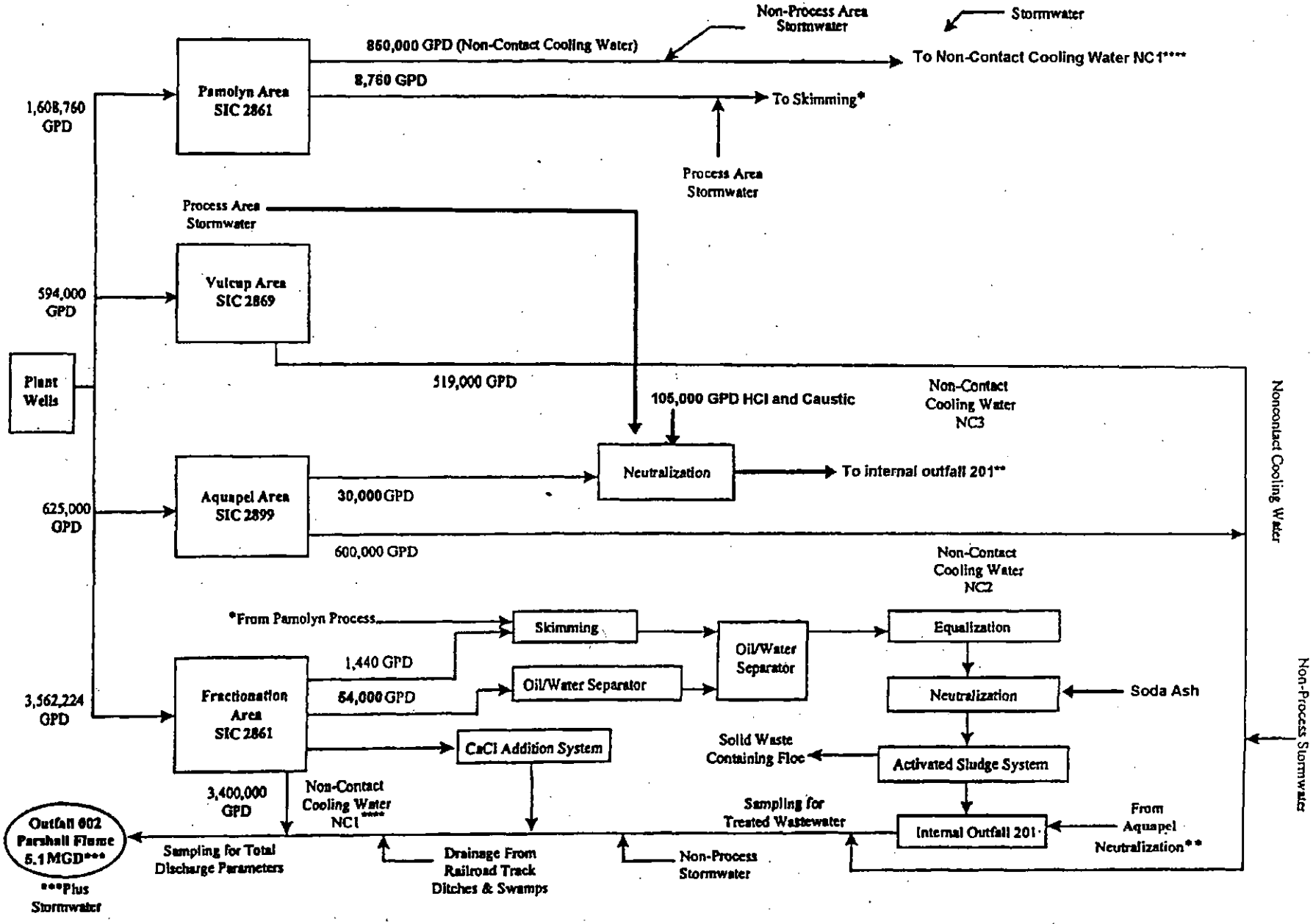
ATTACHMENT 3

SCHEMATIC/PLANS & SPECS/SITE MAP/ WATER BALANCE

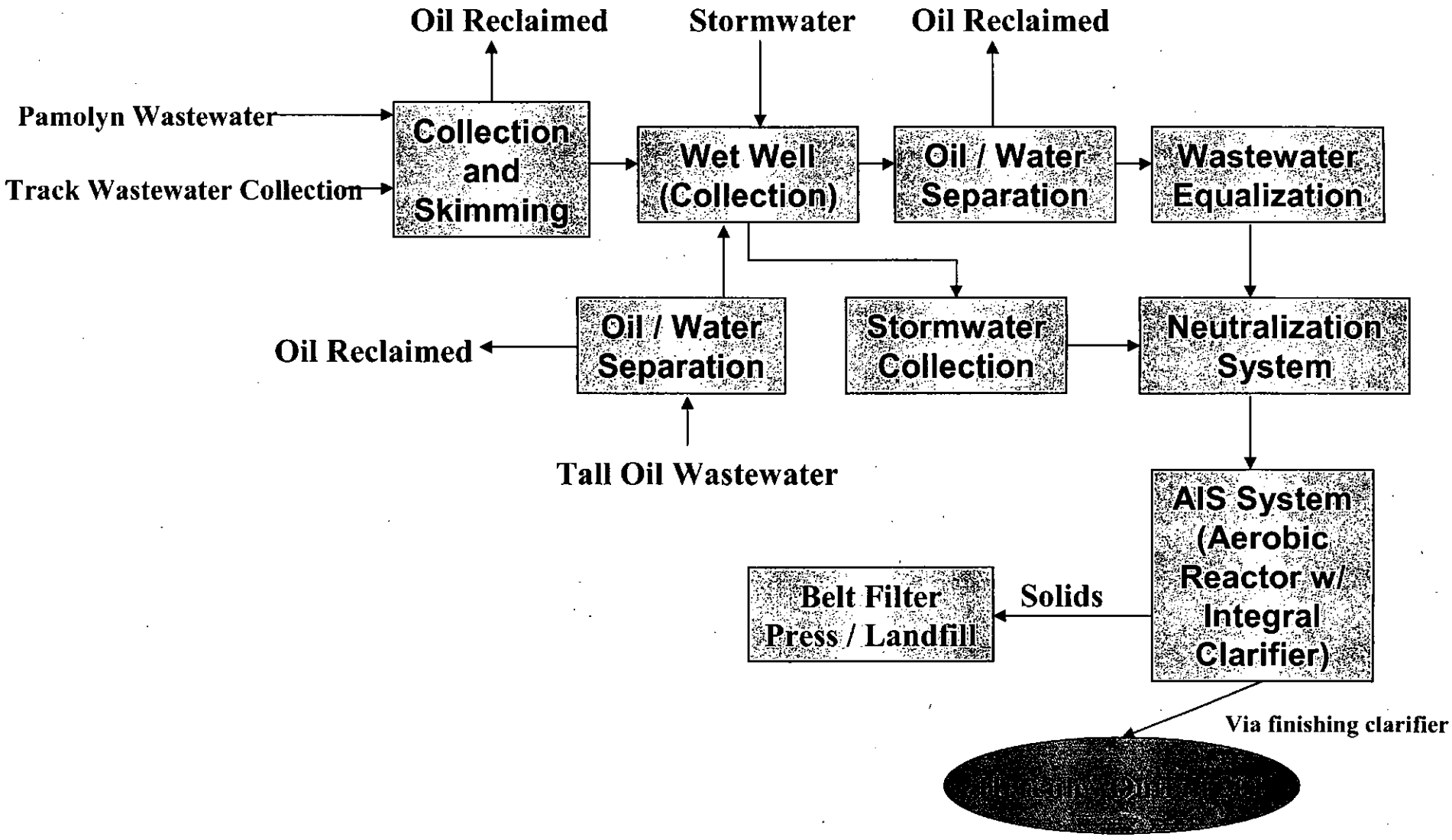


DRAFTED BY: W.A.W. (N.J.)	FLOW BALANCE
CHECKED BY: J.E.H.	HERCULES INCORPORATED FRANKLIN VIRGINIA
REVIEWED BY: C.C.W	Groundwater & Environmental Services, Inc. 23 SOUTH 13TH STREET, SUITE 201, RICHMOND, VA 23219
	DATE: 10-17-06 — FIGURE

Schematic of Water Flow
Hercules, Incorporated
Franklin, Southampton County, Virginia



Hercules / Eastman / GEO – Franklin, VA
Activated Sludge Wastewater Treatment System



ATTACHMENT 4

TABLE I - DISCHARGE/OUTFALL DESCRIPTION

Please print or type in the unshaded areas only.

EPA I.D. NUMBER (*copy from Item 1 of Form 1*)
VAD0003122165

Form Approved.
OMB No. 2040-0086.
Approval expires 3-31-98.

FORM **2C** NPDES

U.S. ENVIRONMENTAL PROTECTION AGENCY
APPLICATION FOR PERMIT TO DISCHARGE WASTEWATER
EXISTING MANUFACTURING, COMMERCIAL, MINING AND SILVICULTURE OPERATIONS
Consolidated Permits Program

I. OUTFALL LOCATION

For each outfall, list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water.

A. OUTFALL NUMBER (*list*)	B. LATITUDE			C. LONGITUDE			D. RECEIVING WATER (*name*)
	1. DEG.	2. MIN.	3. SEC.	1. DEG.	2. MIN.	3. SEC.	
002	N36	39	076	W77	00	138	Nottoway River
201	N36	39	015	W77	00	035	Nottoway River (via Outfall 002)

II. FLOWS, SOURCES OF POLLUTION, AND TREATMENT TECHNOLOGIES

A. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed descriptions in Item B. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, and outfalls. If a water balance cannot be determined (*e.g., for certain mining activities*), provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures.

B. For each outfall, provide a description of: (1) All operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and storm water runoff; (2) The average flow contributed by each operation; and (3) The treatment received by the wastewater. Continue on additional sheets if necessary.

1. OUTFALL NO. (*list*)	2. OPERATION(S) CONTRIBUTING FLOW		3. TREATMENT		
	a. OPERATION (*list*)	b. AVERAGE FLOW (*include units*)	a. DESCRIPTION	b. LIST CODES FROM TABLE 2C-1	
NC1	Pamolyn Non-Contact Cooling Water, SIC Code 2861	1,080,000 gpd	Non-Contact Cooling Water; Calcium Chloride is added to the treatment system at this point.	4A	
			Discharged to 002.		
NC2	Aquapel Non-Contact Cooling Water, SIC Code 2899	1,780,000 gpd	Non-Contact Cooling Water, not treated. Discharged to 002.	4A	
NC3	Vulcup Non-Contact Cooling Water, SIC Code 2969	1,310,000 gpd	Non-Contact Cooling Water, not treated. Discharged to 002.	4A	
201	Neutralized wastewater	135,000 gpd	See attachment 3510-2C-1		
	Pamolyn-T/C	10,200 gpd	See attachment 3510-2C-1		
	Power Area	116,000 gpd	See attachment 3510-2C-1		
002/902	Stormwater discharge	Variable	Uncontaminated stormwater	4A	
002	Total outlined above	5,609,200 gpd			

OFFICIAL USE ONLY (*effluent guidelines sub-categories*)

EPA ID NUMBER
VAD0003122165

Form 2C NPDES	EPA	U.S. Environmental Protection Agency Application for Permit to Discharge Wastewater Existing Manufacturing, Commercial, Mining and Silvicultural Operations		
II. Flows, Sources of Pollution, and Treatment Technologies				
Outfalling (list)	Operation(s) Contributing Flow		Treatment	
	Operation	Average Flow		Codes from Table 2C-1
201/002	Aquapel Process SIC Code 2899	135,000 gpd	Wastewater is partially neutralized in a 7,400 gallon basin (retention time 0.9 hr) and pumped to a neutralization system consisting of a 20,000 gal tank for HCl storage and/or pretreatment and a 750 gallon tank & a 3,000 gal tank in series to Outfall 201.	2K 4A
201/002	Pamolyn Process SIC Code 2861 Tank Car Unloading Area SIC Code 2861	8,800 gpd 1,400 gpd	Light oil is skimmed from wastewater in a 60 Mgal basin (r.t. = 6 days), pumped to an oil/water separator where additional oil is removed before flowing to a 624,000 gal Stormwater tank and/or a 250,000 gallon equalization tank. It is neutralized in-line using soda ash, pumped to a 225,000 gal Aeration Tank with integral clarifier (r.t. 5 days), then to a 20,000 gal polishing clarifier and discharged to Outfall 201. Waste sludge is de-watered on a belt filter press for disposal at a landfill. Purge water from groundwater sampling activities. Groundwater from dewatering activities.	1H 2K 3A 1U 4A 5C 5Q
201/002	Power Area SIC Code 2861	116,000 gpd	Non-Contact Cooling Water; not treated. Discharged to 201 then 002.	4A
002	Power Area SIC Code 2861	90,000 gpd	Reverse Osmosis unit reject water discharge.	4A
201/002 or 002	Wastewater Holding Lagoon, Sludge Pit Remediation Water	Flow as necessary to dewater the wastewater holding lagoon and sludge pits during remediation.	Treatment as necessary to meet discharge limits	4A

Please print or type in the unshaded areas only.

EPA ID Number (*copy from Item 1 of Form 1*)
VAD003122165

Form Approved. OMB No. 2040-0086
Approval expires 5-31-92

FORM **2F** NPDES

U.S. Environmental Protection Agency
Washington, DC 20460

Application for Permit to Discharge Storm Water Discharges Associated with Industrial Activity

Paperwork Reduction Act Notice

Public reporting burden for this application is estimated to average 28.6 hours per application, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate, any other aspect of this collection of information, or suggestions for improving this form, including suggestions which may increase or reduce this burden to: Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 1200 Pennsylvania Avenue, NW, Washington, DC 20460, or Director, Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

I. Outfall Location

For each outfall, list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water.

A. Outfall Number (*list*)	B. Latitude			C. Longitude			D. Receiving Water (*name*)
002	N36	39	76	W77	00	138	Nottoway River
003	N36	39	192	W76	59	947	Wills Gut into Nottoway River
004 A-Old Condensate Ditch	N36	39	11	W76	00	0	Wills Gut into Nottoway River
005 B-Natural Swale	N36	39	11	W76	59	59	Wills Gut into Nottoway River
006 C-Old Outfall 001	N36	39	9	W76	59	53	Wills Gut into Nottoway River

II. Improvements

A. Are you now required by any Federal, State, or local authority to meet any implementation schedule for the construction, upgrading or operation of wastewater treatment equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders, and grant or loan conditions.

1. Identification of Conditions, Agreements, Etc.	2. Affected Outfalls		3. Brief Description of Project	4. Final Compliance Date	
	number	source of discharge		a. req.	b. proj.
Not Applicable					

B. You may attach additional sheets describing any additional water pollution (or other environmental projects which may affect your discharges) you now have under way or which you plan. Indicate whether each program is now under way or planned, and indicate your actual or planned schedules for construction.

III. Site Drainage Map

Attach a site map showing topography (or indicating the outline of drainage areas served by the outfalls(s) covered in the application if a topographic map is unavailable) depicting the facility including: each of its intake and discharge structures; the drainage area of each storm water outfall; paved areas and buildings within the drainage area of each storm water outfall, each known past or present areas used for outdoor storage of disposal of significant materials, each existing structural control measure to reduce pollutants in storm water runoff, materials loading and access areas, areas where pesticides, herbicides, soil conditioners and fertilizers are applied; each of its hazardous waste treatment, storage or disposal units (including each area not required to have a RCRA permit which is used for accumulating hazardous waste under 40 CFR 262.34); each well where fluids from the facility are injected underground; springs, and other surface water bodies which received storm water discharges from the facility.

ATTACHMENT 5

TABLE II - EFFLUENT MONITORING/LIMITATIONS

TABLE II - INDUSTRIAL EFFLUENT LIMITATIONS/MONITORING

OUTFALL # 002
Outfall Description: combined process and non contact cooling water
SIC CODE: 2861, 2869, 2899

(x) Final Limits ( ) Interim Limits Effective Dates - From: Modification To: Expiration

PARAMETER & UNITS	BASIS FOR LIMITS	MULTIPLIER OR PRODUCTION	EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS [a]	
			MONTHLY AVERAGE	MINIMUM	MAXIMUM	FREQUENCY	SAMPLE TYPE
Flow (MGD)	3		NL	NA	NL	continuous	Measured
pH (S.U.)	2		NA	6.0	9.0	1/Week	Grab
Temperature (°C)	3		NL	NA	30	1/Week	I.S.
T. Phosphorus (mg/l)	3		2.0	NA	NA	1/Week	24 HC
T. Phosphorus (lb/d)	3		97	NA	NA	1/Week	24 HC
T. Nitrogen (mg/l)	3		NL	NA	NA	1/Month	24 HC
T. Nitrogen (lb/d)	3		NL	NA	NA	1/Month	24 HC
Effluent Hardness (mg/l)	3		NL	NA	NA	1/Month	24 HC
BOD5 (mg/l) [b]	3		NL	NA	NL	1/Month	24 HC
Total Recoverable Copper (ug/l) [c]	2		NL	NA	52	1/Month	24 HC
Hexavalent Chromium (ug/l)	2		NL	NA	16	1/3 Months	Grab

TABLE II - INDUSTRIAL EFFLUENT LIMITATIONS/MONITORING (continued)

OUTFALL # 002
Outfall Description: combined process and non contact cooling water, reverse osmosis system water
SIC CODE: 2861, 2869, 2899

(x) Final Limits ( ) Interim Limits Effective Dates - From: Modification To: Expiration

PARAMETER & UNITS	BASIS FOR LIMITS	MULTIPLIER OR PRODUCTION	EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS [a]	
			MONTHLY AVERAGE	MINIMUM	MAXIMUM	FREQUENCY	SAMPLE TYPE
Dissolved Oxygen (mg/l)	2		NA	4.0	NA	1/Month	Grab
Acute WET (TU_a) [d]	2		NA	NA	1.0	1/3 Months	24 HC
Chronic WET (Tu_c) [d]	2		NA	NA	6.25	1/3 Months	24 HC

NA = NOT APPLICABLE; NL = NO LIMIT, MONITORING REQUIREMENT ONLY

I.S. = Immersion Stabilization

1/3 Months = In accordance with the following schedule: 1st quarter (January 1 - March 31); 2nd quarter (April 1 - June 30); 3rd quarter (July 1 - September 30); 4th quarter (October 1 - December 31).

[a] Sample shall be taken at Parshall flume for all parameters listed above, except temperature. Temperature shall be measured at a point eleven (11) feet downstream of the Parshall flume.

[b] See Parts I.C.6. and I.C.7. for quantification levels and reporting requirements, respectively.

[c] See Part I.C.9.

[d] See Part I.B.

The bases for the limitations codes are:

1. Technology (e.g., Federal Effluent Guidelines)
2. Water Quality Standards (9 VAC 25-260 et. seq.)
3. Best Professional Judgment

TABLE II – INDUSTRIAL EFFLUENT LIMITATIONS/MONITORING

OUTFALL #: 201
Outfall Description: combined treated waste basin
SIC CODE: 2861, 2869, 2899

(X) Final Limits ( ) Interim Limits Effective Dates - From: Modification To: Expiration

PARAMETER & UNITS	BASIS FOR LIMITS	MULTIPLIER OR PRODUCTION	EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS [a]	
			MONTHLY AVERAGE	MINIMUM	MAXIMUM	FREQUENCY	SAMPLE TYPE
Flow (MGD)	3		NL	NA	NL	Continuous	Measured
BOD5 (mg/l)	1		157	NA	296	1/Week	24 HC
BOD5 (lb/day)	1		176.65	NA	333.37	1/Week	24 HC
Total Suspended Solids (mg/l)	1		69	NA	201	1/Week	24 HC
Total Suspended Solids (lb/day)	1		78.12	NA	226.83	1/Week	24 HC

NA = NOT APPLICABLE; NL = NO LIMIT, MONITORING REQUIREMENT ONLY

[a] Outfall 201 shall be sampled from the combined waste basin (small weir) prior to mixing with other non-process flow.

The bases for the limitations codes are:
1. Technology (e.g., Federal Effluent Guidelines)
2. Water Quality Standards (9 VAC 25-260 et. seq.)
3. Best Professional Judgment

TABLE II - INDUSTRIAL EFFLUENT LIMITATIONS/MONITORING

OUTFALL #: 202
Outfall Description: wastewater lagoon and sludge pit dewatering
SIC CODE: 2861, 2869, 2899

(X) Final Limits ( ) Interim Limits Effective Dates - From: Modification To: Expiration

PARAMETER & UNITS	BASIS FOR LIMITS	MULTIPLIER OR PRODUCTION	EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS [a]	
			MONTHLY AVERAGE	MINIMUM	MAXIMUM	FREQUENCY	SAMPLE TYPE
Flow (MGD)	3		NL	NA	NL	1/Week	Measured
pH (S.U.)	3		NA	6.0	9.0	1/Week	Grab
BOD5 (mg/l)	1		157	NA	296	1/Week	Grab
Total Suspended Solids (mg/l)	1		69	NA	201	1/Week	Grab
Total Petroleum Hydrocarbons (mg/l)	3		30	NA	30	1/Week	Grab
Total Nitrogen (mg/l)	3		NA	NA	NL	1/Month	Grab
Total Phosphorus (mg/l)	3		NA	NA	NL	1/Month	Grab
Benzene (ug/l)	2		NA	NA	50	1/Month	Grab
Toluene (ug/l)	2		NA	NA	175	1/Month	Grab
P Cresol (ug/l)	2		NA	NA	14	1/Month	Grab
Phenol (ug/l)	2		NA	NA	15	1/Month	Grab
Total Recoverable Cadmium (ug/l)	2		NA	NA	3.9	1/Month	Grab

NA = NOT APPLICABLE; NL = NO LIMIT, MONITORING REQUIREMENT ONLY

TABLE II - INDUSTRIAL EFFLUENT LIMITATIONS/MONITORING

OUTFALL #: 202
Outfall Description: wastewater lagoon and sludge pit dewatering
SIC CODE: 2861, 2869, 2899

[a] Outfall 202 shall be sampled from the dewatering treatment system prior to mixing with other non-process flow.

The bases for the limitations codes are:
1. Technology (e.g., Federal Effluent Guidelines)
2. Water Quality Standards (9 VAC 25-260 et. seq.)
3. Best Professional Judgment

TABLE II - INDUSTRIAL EFFLUENT LIMITATIONS/MONITORING

OUTFALL #: 902
Outfall Description: wet weather discharge at outfall 002
SIC CODE: 2861, 2869, 2899

Note - This outfall represents wet weather monitoring for outfall 002 to incorporate storm water in the effluent sampling event

(X) Final Limits ( ) Interim Limits Effective Dates - From: Issuance To: Expiration

PARAMETER & UNITS	BASIS FOR LIMITS	MULTIPLIER OR PRODUCTION	EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS [a]	
			MONTHLY AVERAGE	MINIMUM	MAXIMUM	FREQUENCY	SAMPLE TYPE
Flow (MG)	3		NA	NA	NL	1/Year	Estimate [b]
pH (s.u.)	3		NA	6.0	9.0	1/Year	Grab
BOD5 (mg/l) [c]	3		NA	NA	NL	1/Year	Grab
Total Suspended Solids (mg/l) [c]	3		NA	NA	NL	1/Year	Grab
Total Petroleum Hydrocarbons (mg/l) [c]	3		NA	NA	NL	1/Year	Grab
Chemical Oxygen Demand (mg/l) [c]	3		NA	NA	NL	1/Year	Grab

NA = NOT APPLICABLE; NL = NO LIMIT, MONITORING REQUIREMENT ONLY

1/Year = January 1 - December 31.

[a] See Part I.D. for additional storm water sampling and reporting requirements.
[b] Estimate of the total volume of the discharge during the storm event.
[c] See Parts I.C.6. and I.C.7. for quantification levels and reporting requirements, respectively.

TABLE II - INDUSTRIAL EFFLUENT LIMITATIONS/MONITORING (CONTINUED)

OUTFALL #: 902
Outfall Description: wet weather discharge at outfall 002
SIC CODE: 2861, 2869, 2899

Note - This outfall represents wet weather monitoring for outfall 002 to incorporate storm water in the effluent sampling event

The grab samples shall be taken within the first 30 minutes of the discharge. If this is not practicable, it shall be taken within the first hour of the discharge.

2. All samples shall be collected from the discharge resulting from a measurable storm event that is greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previously measurable (greater than 0.1 inch rainfall) storm event.

The bases for the limitations codes are:
1. Technology (e.g., Federal Effluent Guidelines)
2. Water Quality Standards (9 VAC 25-260 et. seq.)
3. Best Professional Judgment

TABLE II - INDUSTRIAL EFFLUENT LIMITATIONS/MONITORING

OUTFALL #: 003, 004, 005, 006 (004-old condensate ditch; 005-natural swale; 006-old outfall 001)
Outfall Description: Storm water runoff from regulated industrial areas
SIC CODE: 2861, 2869, 2899

(X) Final Limits ( ) Interim Limits Effective Dates - From: Modification To: Expiration

PARAMETER & UNITS	BASIS FOR LIMITS	MULTIPLIER OR PRODUCTION	EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS [a]	
			MONTHLY AVERAGE	MINIMUM	MAXIMUM	FREQUENCY	SAMPLE TYPE
Flow (MG)	3		NA	NA	NL	1/Year	Estimate [b]
pH (s.u.)	3		NA	NL	NL	1/Year	Grab
Total Suspended Solids (mg/l) [c]	3		NA	NA	NL	1/Year	Grab
TPH (mg/l) [c]	3		NA	NA	NL	1/Year	Grab
Chemical Oxygen Demand (mg/l) [c]	3		NA	NA	NL	1/Year	Grab

NA = NOT APPLICABLE; NL = NO LIMIT, MONITORING REQUIREMENT ONLY

1/Year = January 1 - December 31.

[a] See Part I.D. for additional storm water sampling and reporting requirements.
[b] Estimate of the total volume of the discharge during the storm event.
[c] See Parts I.C.6. and I.C.7. for quantification levels and reporting requirements, respectively.

The grab samples shall be taken within the first 30 minutes of the discharge. If this is not practicable, it shall be taken within the first hour of the discharge.

TABLE II - INDUSTRIAL EFFLUENT LIMITATIONS/MONITORING

OUTFALL #: 003, 004, 005, 006 (004-old condensate ditch; 005-natural swale; 006-old outfall 001)
Outfall Description: Storm water runoff from regulated industrial areas
SIC CODE: 2861, 2869, 2899

2. All samples shall be collected from the discharge resulting from a measurable storm event that is greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previously measurable (greater than 0.1 inch rainfall) storm event.

The bases for the limitations codes are:
1. Technology (e.g., Federal Effluent Guidelines)
2. Water Quality Standards (9 VAC 25-260 et. seq.)
3. Best Professional Judgment

ATTACHMENT 6

EFFLUENT LIMITATIONS/MONITORING RATIONALE/SUITABLE DATA/ ANTIDEGRADATION/ANTIBACKSLIDING

Hercules Incorporated
VPDES Permit VA0003433

Hercules Incorporated divested various portions of the facility including the Resins (Tall Oil Fractionation, Pamolyn and Activated Sludge Treatment System) and the Vulcup Assets to Eastman Chemical Resins Incorporated (ECRI) and GEO Specialty Chemicals, Inc. (GEO), respectively during the previous permit process. Hercules entered into a Shared Site Services Agreement with both of these corporations in which Hercules will provide production and ancillary services to ECRI and GEO including all wastewater treatment operations. Hercules will continue to be the owner and operator of the Aquapel Process located at the Franklin facility in addition to all other provisions agreed upon in the Shared Site Services Agreements.

Hercules personnel will continue to operate the wastewater treatment system and all ancillary equipment associated with facility wastewater treatment. Hercules will continue to maintain the VPDES permit and assume responsibility for all the requirements of the permit.

Hercules was acquired by Ashland Chemicals during the current permit term. Ashland is now the parent company, but the permittee has indicated that the permit will still be under the name Hercules and no name or owner changes should be made to the permit.

The facility has shut down the tall oil process, resulting in new effluent guideline limitations. The Aquapel process has been reclassified from Subpart F to Subpart C, resulting in new effluent guideline limitations.

The permittee is adding a reverse osmosis system to the facility, the reject water and occasional backflush water will discharge to the discharge ditch prior to outfall 002. Appropriate limitations and special conditions were added to address this new wastewater source.

The facility is under an EPA-lead RCRA corrective action plan that includes dewatering of on-site wastewater lagoons and sludge pits. This dewatering will undergo treatment on site by a portable treatment system and will be discharged via internal outfall 202.

The permit modification will address the following outfalls: external outfall 002, the combined discharge of process wastewater, non contact cooling water, RO reject water and storm water; outfall 201, the internal process wastewater flow to outfall 002 and the point at which technology limits will apply; outfall 202, the treatment and discharge of wastewater lagoon and sludge pit dewatering; and storm water outfalls 004, 005 and 006, storm water from regulated industrial areas at the plant. Outfalls 902 and 003 are not impacted by this modification, but the rationales for these outfalls are included in this section and are taken from the fact sheet for the reissuance of this permit in 2007. Rationales for specific effluent limitations follow.

Outfall 002

This outfall is the combined external outfall for process wastewater from internal outfall 201, internal outfall 202, storm water, non-contact cooling water and reverse osmosis system reject water. The only parameter changed during the 2009 permit modification is the addition of a minimum dissolved oxygen limit due to the addition of reverse osmosis system discharge to the outfall.

Flow: No limit, sampling type is measured. Sampling frequency is continuous and reporting is monthly, based on the flow and type of operations at the facility. This is a typical requirement for the VPDES industrial permit. The facility uses a flow meter in the discharge canal to measure flow.

pH: Grab sample. Monitoring frequency is once per week, based on flow. Permit limits of 6.0 S.U. minimum, 9.0 S.U. maximum are based on BPJ to protect water quality.

Temperature: Immersion stabilization. Sampling frequency is once per week. Maximum limitation is 30°C. State Water Quality Standards at Regulations 9 VAC 25-260-60 through 9 VAC 25-260-90 address temperature requirements in State waters. In order to comply with these standards, a maximum temperature limit of 30°C for the discharge at outfall 002 has been established based on the presence of non-contact cooling water in the discharge. The flow of non contact cooling water is over 90% of the 5 MGD flow from outfall 002 to the receiving stream. A 1 day/10 year low flow in the receiving stream is 18 MGD. The discharge from this plant could make up nearly 30% of the instream flow. Due to the significant contribution of the discharge to the stream and the significant amount of cooling water in the discharge, the maximum temperature limit of 30°C is believed necessary to be protective of aquatic life in the receiving stream. This requirement is based on BPJ to protect water quality and comply with the water quality standards. Instream water temperature data show average water temperatures to be around 28 to 30°C, and any temperature limit above 30°C has the potential to raise the water temperature in the receiving stream greater than allowed under the standards.

Total Phosphorus: 24 hr. composite sampling at a frequency of once per week. Monthly average limitations 2.0 mg/1 and 97 lb/d are based on 9 VAC 25-40-30, Strategy for Nutrient Enriched Waters Outside of the Chesapeake Bay Watershed.

Total Nitrogen: 24 hr. composite sampling at a frequency of once per month. Monthly average reporting for concentration (mg/l) and mass (lb/d). This will be monitoring only with no limits. This monitoring strategy is based on BPJ using the State's past Policy for Nutrient Enriched Waters and VPDES Permit Manual. The frequency has been reduced from 1/week to 1/month based on BPJ, including a review of previous data, which shows little data variability. A frequency of 1/month is sufficient to obtain any data needed to evaluate the nutrient load into the receiving stream.

BOD5: 24 hr. composite sampling at a frequency of once per month. Monthly average and daily maximum reporting applies; monitoring only with no limits. This requirement is based on BPJ. This parameter is limited at the internal outfall per Federal Effluent Guidelines.

Chromium VI: Sampling method is grab because this metal is reported in dissolved form. Sampling frequency is quarterly. Daily maximum limit of 16 ug/1. is based on water quality. Previous chemical data indicated the presence of this metal in the effluent with concentration exceeding that of water quality standards. Based on Agency guidance for data reporting using two significant figures, the limit is now expressed in two significant figures instead of four significant figures in the previous permit.

Total Recoverable Copper: 24 hr. composite sampling at a frequency of 1/month. The calculated daily maximum limit is 9.8 ug/1., based on previous data indicating that numerical limitations are necessary to protect water quality standards. A metals translator study was done for this parameter and has been approved by DEQ. For compliance purposes, the new copper limit is calculated by dividing the existing copper limit by the site specific translator study.

Calculated copper limit From the Water Quality Standards:	9.8 ug/l
Site specific metals translator value:	0.19
Revised copper limit:	51.6 ug/l = 52 ug/l

The revised limit will appear on the Part I.A. limits page in order to facilitate reporting and compliance tracking; and will be included on the DMR. A special condition will further address the translator factor. Any changes to the translator factor will change the revised copper limit. Based on Agency guidance for reporting to two significant figures, the revised copper limit will be expressed as 52 ug/l.

Effluent Hardness: 24 hr. composite sample at a frequency of once per month. Monthly average reporting only. Previous effluent hardness data, TRE data, and toxicity data indicate that an effluent hardness value of 60 mg/l, supported by TRE work, is sufficient to protect against acute toxicity. As a result, it was recommended that a minimum hardness limitation of 60 mg/l $CaCO_3$ be established for this discharge. However, this number is not included in the permit as a limit, the requirement is for reporting only. This is based on BPJ. In order to protect against acute toxicity, an acute WET

limit is included in the permit, negating the need for any harness limit.

Dissolved Oxygen: This parameter has been added during the 2009 permit modification. The permittee has added a reverse osmosis (RO) water treatment system at the facility to treat water the permittee will use in process and sell to an outside customer. The reject water from the system and occasional backflush from the system will discharge to the drainage ditch leading to outfall 002. No regeneration water will be discharged; regeneration of the units will take place off site by the contract provider. Based on water quality standards at 9 VAC 25-260-50, numerical criteria for dissolved oxygen et al, dissolved oxygen in the Chowan Basin must be maintained at a minimum of 4.0 mg/l. Based on regulation 9 VAC 25-860-10 et seq, the regulation for potable water treatment plants, RO systems have the potential to affect dissolved oxygen. The regulation requires a minimum dissolved oxygen limitation of 4.0 mg/l for discharges from RO units. This is the same requirement the DEQ included in VPDES permits by BPJ prior to the implementation of this regulation and general permit. The fact sheet for the general permit regulation indicates that meeting the dissolved oxygen requirement demonstrates that system is operating correctly and is in good repair. This would indicate that the minimum dissolved oxygen requirement could be placed on the discharge from the system prior to mixing with other flows in the ditch to outfall 002. However, the system at this facility will discharge at a rate of approximately 65,000 gallons per day which is a small percentage of the flow in the ditch to outfall 002, and is a relatively minor contribution to the discharge to the receiving stream; therefore, the discharge of this system alone has little potential to greatly affect the D.O. content in the drainage ditch or in the receiving stream. But, the combination of all process and non-process flows to the receiving stream from the combined outfall 002 do have the potential to affect dissolved oxygen in the receiving stream. And, since the D.O. minimum limit is based on water quality, it is more appropriate to apply this limit at the external outfall. Therefore, the D.O. minimum limitation of 4.0 mg/l will be placed on the external outfall to protect water quality and aquatic organisms in the receiving stream.

Whole Effluent Toxicity: See attachment 8.

Outfall 201

This internal outfall is the process wastewater treatment system and the location at which the federal effluent guideline limits from 40 CFR 454 apply. The facility has undergone significant changes in the last year, affecting both the application and calculation of federal effluent guideline limitations. BOD and TSS limitations have been recalculated based on these changes. No limits were made less stringent by the recalculation of the limits.

Flow: Monthly average and daily maximum flow measurement is reported monthly from continuous flow monitoring at the internal outfall, prior to the discharge mixing with other flow to outfall 002. This is based on BPJ for this type of process operation at the facility. This is a typical requirement for a VPDES industrial permit.

BOD5: 24 hr. composite sampling at a frequency is once per week is based on flow. Technology-based limits of 157 mg/l and 176.65 lbs/day monthly average, and 296 mg/l and 333.37 lbs/day daily maximum are based on Federal Effluent Guidelines, 40 CFR Part 454, subparts D and C. See effluent limits calculations for derivation of numerical limitations. Operations and flow have changed significantly at the plant during the past year and these limits are based on a reduction in flow from the deletion of the tall oil process at the plant, resulting in a recalculation of limits from subpart D. The Aquapel process was reviewed and it was determined that the process is actually better represented in subpart C rather than subpart F. The reason for the change is presented in correspondence later in this section.

Total Suspended Solids: 24 hr. composite sampling at a frequency is once per week is based on flow. Technology-based limits of 69 mg/l and 78.12 lbs/day monthly average, and 201 mg/l and 226.83 lbs/day daily maximum are based on Federal Effluent Guidelines, 40 CFR Part 454, subparts D and C. See effluent limits calculations for derivation of numerical limitations. Operations and flow have changed significantly at the plant during the past year and these limits are based on a reduction in flow from the deletion of the tall oil process at the plant, resulting in a recalculation of limits from subpart D. The Aquapel process was reviewed and it was determined that the process is actually better represented in subpart C rather than subpart F. The reason for the change is presented in correspondence later in this section.

subject to the provisions of this paragraph after application of the best practicable control technology currently available:

[Metric units, kg/kkg of product; English units, lb/1,000 lb of product]

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed—
BOD5	1.42	0.755
TSS	0.077	0.026
pH	(1)	(1)

[1] Within the range 6.0 to 9.0.

[41 FR 20511, May 18, 1976, as amended at 60 FR 33970, June 29, 1995]

Subpart C—Wood Rosin, Turpentine and Pine Oil Subcategory

§ 454.30 Applicability; description of the manufacture of wood rosin, turpentine and pine oil subcategory.

The provisions of this subpart are applicable to discharges resulting from the manufacture of wood rosin, turpentine and pine oil subcategory.

§ 454.31 Specialized definitions.

For the purpose of this subpart:

(a) Except as provided below, the general definitions, abbreviations and methods of analysis set forth in 40 CFR part 401 shall apply to this subpart.

(b) The term "product" shall mean products from wood rosin, turpentine and pine oil.

§ 454.32 Effluent limitations and guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

Except as provided in §§ 125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT):

(a) The following limitations establish the quantity or quality of pollutants or pollutant properties, controlled by this paragraph, which may be discharged from the manufacture of wood rosin, turpentine and pine oil by a point source subject to the provisions of this paragraph after application of the best practicable control technology currently available:

[Metric units, kg/kkg of product; English units, lb/1,000 lb of product]

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed—
BOD5	2.08	1.10
TSS	1.38	0.475
pH	(1)	(1)

[1] Within the range 6.0 to 9.0.

[41 FR 20511, May 18, 1976, as amended at 60 FR 33970, June 29, 1995]

Subpart D—Tall Oil Rosin, Pitch and Fatty Acids Subcategory

§ 454.40 Applicability; description of manufacture of tall oil rosin, pitch and fatty acids subcategory.

The provisions of this subpart are applicable to discharges resulting from the manufacture of tall oil rosin, pitch and fatty acids.

§ 454.41 Specialized definitions.

For the purpose of this subpart:

(a) Except as provided below, the general definitions, abbreviations and methods of analysis set forth in 40 CFR part 401 shall apply to this subpart.

(b) The term "product" shall mean tall oil rosin, pitch and fatty acids.

§ 454.42 Effluent limitations and guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

Except as provided in §§ 125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT):

(a) The following limitations establish the quantity or quality of pollutants or pollutant properties, controlled by this paragraph, which may be discharged from the manufacture of tall oil rosin, pitch and fatty acids by a point source subject to the provisions of this paragraph after application of the best practicable control technology currently available:

[Metric units, kg/kkg of product; English units, lb/1,000 lb of product]

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed—
BOD5	0.995	0.529
TSS	0.705	0.243
pH	(1)	(1)

[1] Within the range 6.0 to 9.0.

[41 FR 20511, May 18, 1976, as amended at 60 FR 33971, June 29, 1995]

Subpart E—Essential Oils Subcategory

§ 454.50 Applicability; description of the essential oils subcategory.

The provisions of this subpart are applicable to discharges resulting from the manufacture of essential oils.

§ 454.51 Specialized definitions.

For the purpose of this subpart:

(a) Except as provided below, the general definitions, abbreviations and methods of analysis set forth in 40 CFR part 401 shall apply to this subpart.

(b) The term "product" shall mean essential oils.

§ 454.52 Effluent limitations and guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

Except as provided in §§ 125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT):

(a) The following limitations establish the quantity or quality of pollutants or pollutant properties, controlled by this paragraph, which may be discharged from the manufacture of essential oils by a point source subject to the provisions of this paragraph after application of the best practicable control technology currently available:

[Metric units, kg/kkg of product; English units, lb/1,000 lb of product]

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed—
BOD5	22.7	12.0
TSS	9.01	3.11
pH	(1)	(1)

[1] Within the range 6.0 to 9.0.

[41 FR 20511, May 18, 1976, as amended at 60 FR 33971, June 29, 1995]

Subpart F—Rosin-Based Derivatives Subcategory

§ 454.60 Applicability; description of manufacture of rosin-based derivatives subcategory.

The provisions of this subpart are applicable to discharges resulting from the manufacture of rosin-based derivatives.

§ 454.61 Specialized definitions.

For the purpose of this subpart:

(a) Except as provided below, the general definitions, abbreviations and methods of analysis set forth in 40 CFR part 401 shall apply to this subpart.

(b) The term "product" shall mean rosin-based derivatives.

§ 454.62 Effluent limitations and guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

Except as provided in §§ 125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT):

(a) The following limitations establish the quantity or quality of pollutants or pollutant properties, controlled by this paragraph, which may be discharged from the manufacture of rosin-based derivatives by a point source

Ashland – Hercules Franklin VA0003433

Permit Modification 2009

Technology Based Limits based on deletion of Tall Oil Production and Reclassification of the Aquapel Process

The industrial processes at the Franklin facility used to include refining crude tall oil into rosin acid and fatty acid products, upgrading of the fatty acids and manufacturing of paper sizing agents and organic peroxide. These processes are subject to Federal Regulations 40 CFR Part 454 – Gum and Wood Chemicals Manufacturing Point Source Category.

In 2008 the facility stopped producing tall oil products, changing the effluent limitations under 40 CFR 454. At the time of this modification of the permit, the permittee also requested that the DEQ review the subparts under 40 CFR Part 454 to determine if the current classification is appropriate.

Based on these two changes to the way the federal effluent guidelines under 40 CFR 454 are applied, the effluent limitations for BOD and TSS at outfall 201 will change with this permit modification. All flows from tall oil production will be removed from the equation calculating effluent limitations based on production. The production from Pamolyn Crystallization will now be the only production used to calculate limits under Subpart D – Tall Oil Rosin, Pitch and Fatty Acids Subcategory. The Subcategory for the Aquapel process will be changed from Subpart F (Rosin-Based Derivatives) to Subpart C – Wood Rosin, Turpentine and Pine Oil Subcategory. The basis for this presented in a letter from the permittee's consultant to DEQ dated April 20, 2009. This letter included excerpts from the Development Document for the Effluent Guidelines for the Gum and Wood Chemicals Point Source Category.

All documents used to calculate the prior and new limitations for BOD and TSS at outfall 201 are presented in the following pages.

The derivation of the limits under the process prior to 2008 is presented on Pages 1-3; these effluent limitations were included in the VPDES permit reissued in 2007.

The changes to these calculations for this modification are presented in Pages 4-6.

The calculations of the federal effluent guideline limits for outfall 201 for BOD and TSS effective with this modification are presented in Pages 7-9.

The April 20, 2009 letter from the permittee's consultant with explanation of the differences between the subcategories and excerpts from the development document are presented after the derivation of the limits.

Permit No. VA0003433

FACILITY NAME: Hercules Incorporated

EFFLUENT LIMITS CALCULATIONS

As indicated in the permit application, the industrial processes at Hercules include refining crude tall oil into rosin acid and fatty acid products, upgrading of fatty acids, and manufacturing of paper sizing agents and organic peroxide. These processes are subject to the EPA effluent guidelines known as 40 CFR. This regulation requires the point source to achieve discharges that do not exceed the quantity (mass) determined by multiplying the process wastewater flow times the appropriate concentrations given under each category.

Below is a list of processes and their respective manufacturing categories.

Process	SIC code	Production	EPA effluent guidelines
CTO Distillation	2861	445,000 lb/d	40 CFR Part 454 Subpart D
Crude Fatty Acid Distillation	2861	221,000 lb/d	40 CFR Part 454 Subpart D
Pamolyn Crystallization	2861	126,000 lb/d	40 CFR Part 454 Subpart D
Sizing Agent (Aquapel process)	2899	100,000 lb/d	40 CFR Part 454 Subpart F

I. Under 40 CFR Part 454 - Gum and Wood Chemicals Manufacturing Point Source Category

Subpart D - Tall Oil Rosin, Pitch and Fatty Acids Subcategory

Effluent characteristics	Effluent limitations		
	Daily Max	Daily Average	Minimum
BOD5 (lb/1,000 lb of product)	0.995	0.529	
TSS (lb/1,000 lb of product)	0.705	0.243	
pH (standard unit)	9.0		6.0

Subpart F - Rosin-Based Derivatives Subcategory

Effluent characteristics	Effluent limitations		
	Daily Max	Daily Average	Minimum
BOD5 (lb/1,000 lb of product)	1.41	0.748	
TSS (lb/1,000 lb of product)	0.045	0.015	
pH (standard unit)	9.0		6.0

7/12

FACILITY NAME: Hercules Incorporated

A. Tall Oil, Rosin, Pitch and Fatty Acids Subcategory

CTO Distillation (2861)	445,000 lb/d	40 CFR Part 454 Subpart D
Crude Fatty Acid (2861) Distillation	221,000 lb/d	40 CFR Part 454 Subpart D
Pamolyn (2861) Crystallization	126,000 lb/d	40 CFR Part 454 Subpart D
Total	792,000 lb/d	

BOD5 (max) = 0.995 lb/1000 lb of product x 792,000 lb/d
= 788.04 lb/d

BOD5 (average) = 0.529 lb/1000 lb of product x 792,000 lb/d
= 418.96 lb/d

TSS (max) = 0.705 lb/1000 lb of product x 792,000 lb/d
= 558.36 lb/d

TSS (average) = 0.243 lb/1000 lb of product x 792,000 lb/d
= 192.45 lb/d

B. Rosin-Based Derivatives Subcategory

Sizing Agent (2899) (Aquapel process)	100,000 lb/d	40 CFR Part 454 Subpart F

BOD5 (max) = 1.41 lb/1000 lb of product x 100,000 lb/d
= 141 lb/d

BOD5 (average) = 0.748 lb/1000 lb of product x 100,000 lb/d
= 74.8 lb/d

TSS (max) = 0.045 lb/1000 lb of product x 100,000 lb/d
= 4.5 lb/d

TSS (average) = 0.015 lb/1000 lb of product x 100,000 lb/d
= 1.5 lb/d

Parameter	Value from A. (lb/d)	+	Value from B. (lb/d)	=	Total (lb/d)
BOD5 (max)	788.04	+	141	=	929.04
BOD5 (average)	418.96	+	74.8	=	493.76
TSS (max)	558.36	+	4.5	=	562.86
TSS (average)	192.45	+	1.5	=	193.95

Converting the mass effluent limitations (lb/d) into concentration (mg/l),

The flow value of 135,000 gpd was used in the conversion process. It is the average flow of outfall ~~002~~ 001.

BOD5 (max)	825 mg/l
BOD5 (average)	438 mg/l
TSS (max)	500 mg/l
TSS (average)	172 mg/l

Changes to Technology Based Limitations Based on Deletion of Tall Oil Production & Change in Subcategory for Aquapel

Permit No. VA0003433

FACILITY NAME: Hercules Incorporated

EFFLUENT LIMITS CALCULATIONS - 2007 information

As indicated in the permit application, the industrial processes at Hercules include refining crude tall oil into rosin acid and fatty acid products, upgrading of fatty acids, and manufacturing of paper sizing agents and organic peroxide. These processes are subject to the EPA effluent guidelines known as 40 CFR. This regulation requires the point source to achieve discharges that do not exceed the quantity (mass) determined by multiplying the process wastewater flow times the appropriate concentrations given under each category.

Below is a list of processes and their respective manufacturing categories.

Process	SIC code	Production	EPA effluent guidelines
~~CTO Distillation~~	~~2861~~	~~445,000 lb/d~~	~~40 CFR Part 454 Subpart D~~
~~Crude Fatty Acid Distillation~~	~~2861~~	~~221,000 lb/d~~	~~40 CFR Part 454 Subpart D~~
Pamolyn Crystallization	2861	126,000 lb/d	40 CFR Part 454 Subpart D
Sizing Agent (Aquapel process)	2899	100,000 lb/d	40 CFR Part 454 Subpart F

> Deleted 2008

I. Under 40 CFR Part 454 - Gum and Wood Chemicals Manufacturing Point Source Category

Subpart D - Tall Oil Rosin, Pitch and Fatty Acids Subcategory

Effluent characteristics	Effluent limitations		
	Daily Max	Daily Average	Minimum
BOD5 (lb/1,000 lb of product)	0.995	0.529	
TSS (lb/1,000 lb of product)	0.705	0.243	
pH (standard unit)	9.0		6.0

Subpart TC Wood Rosin, Turpentine & Pine Oil Process

~~Subpart F - Rosin Based Derivatives Subcategory~~

Effluent characteristics	Effluent limitations		
	Daily Max	Daily Average	Minimum
BOD5 (lb/1,000 lb of product)	~~1.41~~ 2.08	~~0.748~~ 1.10	
TSS (lb/1,000 lb of product)	~~0.045~~ 1.38	~~0.015~~ 0.475	
pH (standard unit)	9.0		6.0

7/12

Permit No. VA0003433

FACILITY NAME: Hercules Incorporated

A. Tall Oil, Rosin, Pitch and Fatty Acids Subcategory

~~CTO Distillation (2861) 443,000 lb/d 40 CFR Part 454 Subpart D~~
~~Crude Fatty Acid (2861) 221,000 lb/d 40 CFR Part 454 Subpart D~~
~~Distillation~~
Pamolyn (2861) Crystallization 126,000 lb/d 40 CFR Part 454 Subpart D

Total 792,000 lb/d – 666,000 lb/d = 126,000 lb/d

BOD5 (max) = 0.995 lb/1000 lb of product x 126,000 lb/d / ~~792,000 lb/d~~ = 125.37 lb/d
~~= 788.04 lb/d~~

BOD5 (average) = 0.529 lb/1000 lb of product x 126,000 lb/d / ~~792,000 lb/d~~ = 66.65 lb/d
~~= 418.96 lb/d~~

TSS (max) = 0.705 lb/1000 lb of product x 126,000 lb/d / ~~792,000 lb/d~~ = 88.83 lb/d
~~= 558.36 lb/d~~

TSS (average) = 0.243 lb/1000 lb of product x 126,000 lb/d / ~~792,000 lb/d~~ = 30.62 lb/d
~~= 192.45 lb/d~~

B. Rosin-Based Derivatives Subcategory

Sizing Agent (2899) (Aquapel process) 100,000 lb/d 40 CFR Part 454 Subpart ~~D~~ C

BODS (max) = ~~1.41~~ 2.08 lb/1000 lb of product x 100,000 lb/d = 208 lb/d
~~= 141 lb/d~~

BOD5 (average) = ~~0.748~~ 1.10 lb/1000 lb of product x 100,000 lb/d = 110 lb/d
~~= 74.8 lb/d~~

TSS (max) = ~~0.045~~ 1.38 lb/1000 lb of product x 100,000 lb/d = 138 lb/d
~~= 4.5 lb/d~~

TSS (average) = ~~0.015~~ 0.475 lb/1000 lb of product x 100,000 lb/d = 47.5 lb/d
~~= 1.5 lb/d~~

7/13

Parameter	Value from A. (lb/d)	+	Value from B. (lb/d)	=	Total (lb/d)	
BOD5 (max)	~~788.04~~ 125.37	+	~~141~~ 208	=	~~929.04~~ 333.37	lb/d
BOD5 (average)	~~418.96~~ 66.65	+	~~74.8~~ 110	=	~~493.76~~ 176.65	lb/d
TSS (max)	~~558.36~~ 88.83	+	~~4.5~~ 138	=	~~562.86~~ 226.83	lb/d
TSS (average)	~~192.45~~ 30.62	+	~~1.5~~ 47.5	=	~~193.95~~ 78.12	lb/d

Converting the mass effluent limitations (lb/d) into concentration (mg/l),

The flow value of 135,000 gpd was used in the conversion process. It is the average flow of outfall ~~002~~ 201 (M5)

BOD5 (max)	~~825 mg/l~~ 296.09 =	296 mg/l
BOD5 (average)	~~438 mg/l~~ 156.90 =	157 mg/l
TSS (max)	~~500 mg/l~~ 201.47 =	201 mg/l
TSS (average)	~~172 mg/l~~ 69.38 =	69 mg/l

lb/d ÷ .135 ÷ 8.34 = mg/l

Ashland – Hercules Franklin VA0003433

Permit Modification 2009

Technology Based Limits based on deletion of Tall Oil Production and Reclassification of the Aquapel Process

Based on the deletion of the Tall Oil process and the re-classification of the Aquapel process, the following limits are applicable at outfall 201 for BOD and TSS.

I. Processes and production:

Process	SIC Code	Production	EPA Guideline
Pamolyn Crystallization:	2861	126,000 lb/d	40 CFR 454 Subpart D
Aquapel Process	2899	100,000 lb/d	40 CFR 454 Subpart C

II. Effluent Characteristics and Applicable Effluent Guideline Limitations

A. Subpart D – Tall Oil Rosin, Pitch and Fatty Acids

Effluent Characteristic	Effluent Limitations	
	Daily Max	Average
BOD5 (1b/1,000 lb of product)	0.995	0.529
TSS (lb/1,000 lb of product)	0.705	0.243

A. Subpart C – Wood Rosin, Turpentine and Pine Oil Process

Effluent Characteristic	Effluent Limitations	
	Daily Max	Average
BOD5 (1b/1,000 lb of product)	2.08	1.10
TSS (lb/1,000 lb of product)	1.38	0.475

Ashland – Hercules Franklin VA0003433

Permit Modification 2009

Technology Based Limits based on deletion of Tall Oil Production and Reclassification of the Aquapel Process

III. Mass Limit Derivation

A. Subpart D Pamolyn Crystallization: 126,000 lb/d

BOD (max)	0.995 lb/1,000 lb of product	x	126,000 lb/d	= 125.37 lb/day
BOD (avg)	0.529 lb/1,000 lb of product	x	126,000 lb/d	= 66.65 lb/day
TSS (max)	0.705 lb/1,000 lb of product	x	126,000 lb/d	= 88.83 lb/day
TSS (avg)	0.243 lb/1,000 lb of product	x	126,000 lb/d	= 30.62 lb/day

B. Subpart C Aquapel Process: 100,000 lb/d

BOD (max)	2.08 lb/1,000 lb of product	x	100,000 lb/d	= 208 lb/day
BOD (avg)	1.10 lb/1,000 lb of product	x	100,000 lb/d	= 110 lb/day
TSS (max)	1.38 lb/1,000 lb of product	x	100,000 lb/d	= 138 lb/day
TSS (avg)	0.475 lb/1,000 lb of product	x	100,000 lb/d	= 47.5 lb/day

C. Total:

BOD (max)	125.37	+ 208	=	333.37 lb/d
BOD (avg)	66.65	+ 110	=	176.65 lb/d
TSS (max)	88.83	+ 138	=	226.83 lb/d
TSS (avg)	30.62	+ 47.5	=	78.12 lb/d

Ashland – Hercules Franklin VA0003433

Permit Modification 2009

Technology Based Limits based on deletion of Tall Oil Production and Reclassification of the Aquapel Process

IV. Coverting the Mass Limitations (lb/day) to Concentration Limitations (mg/l).

A flow value of 135,000 gpd was used in the conversion process; it is the average flow of outfall 201.

The following equation was used for the conversions: lb/d / .135 / 8.34 = mg/l

BOD (max)	296.09	=	296 mg/l
BOD (avg)	156.90	=	157 mg/l
TSS (max)	201.47	=	201 mg/l
TSS (avg)	69.38	=	69 mg/l

Arrowhead Environmental Services
P.O. Box 217
Windsor, VA 23487
(757) 242-3174 Facsimile
www.arrowheadenvironmental.com

April 20, 2009

Mr. Mark Sauer
Virginia Department of Environmental Quality
5636 Southern Boulevard
Virginia Beach, VA 23462

Re: VPDES Permit Renewal
Ashland Hercules Water Technologies
Franklin, Virginia
VA0003433

Dear Mr. Sauer,

The purpose of this letter is to request that the Aquapel effluent limit guidelines subcategory for the Ashland Hercules Water Technologies Virginia Pollution Discharge Elimination System (VPDES) permit for the facility in Franklin, Virginia be revised to more accurately reflect the manufacturing process. As we discussed in our December 17, 2008 meeting, a review of the Development Document for Proposed Effluent Limitations Guidelines, New Source Performance Standards, and Pretreatment Standards for the Gum and Wood Chemicals Point Source Category (December 1979) has lead to this request. A copy of pertinent pages from the development document is attached to this request.

The Aquapel process involves the following general steps.

1. Batch reaction of fatty acid (animal, vegetable or wood based) via chlorination to produce fatty acid chloride and co-products of hydrochloric acid and phosphorous acid.
2. Extraction in a series of tanks of the co-product acids from the fatty acid chloride to produce a purified fatty acid chloride.
3. The purified fatty acid chloride is reacted in a second series of reactors with triethylamine (TEA) using propylene dichloride (PDC) as a solvent to produce the raw product of alkyl ketene dimer (Aquapel).
4. The raw product is purified via a centrifuge and series of stills (multi-stage distillation). Once distilled, the dimer is sent to packaging as a final product.
5. The co-product acids are purified via separation and filtration and sold as reusable products. A portion of the hydrochloric acid is used for neutralization of caustic wastewaters from the solvent recovery process.
6. The TEA and PDC mixture is sent to solvent recovery which is a batch distillation process with condensers and separation equipment to recovery the materials for reuse in the process. A portion of the condensed solvent is refluxed back to the distillation columns.

A copy of the flow diagram for Aquapel is attached. A majority of the wastewater produced in Aquapel is from the solvent recovery process.

The current effluent limit guidelines subcategory for the Aquapel process is Subpart F – Rosin Based Derivatives. As can be seen in the attached Development Document, the rosin derivative process is produced when stump wood rosin and glycerin are reacted under vacuum conditions followed by a steam sparge to remove impurities. The impurities are sent through a scrubber and wastewater is produced from the separator after the scrubber. Additional wastewater is also produced from vessel wash down. A description of this process is presented on Page 37 and the flow diagram is presented in Figure III-5 (Page 38) of the attached Development Document.

The Aquapel process is different from the Rosin Based Derivatives process for the following reasons.

1. The Rosin Based Derivatives process does not have any solvent recovery distillation process (as outlined in item 6 above).
2. There is no raw production purification in the Rosin Based Derivatives process (as outlined in item 4 above).
3. The Rosin Based Derivatives process consists of a two step process which is a very simple process as outlined in the Development Document. The Aquapel process is more complicated and contains many more processes to produce the final product.
4. As mentioned previously, the majority of wastewater produced by Aquapel is from the solvent recovery process, which is not present in the Rosin Based Derivatives process.

Because the Rosin Based Derivatives process is not similar to Aquapel, the Development Document was reviewed to select the process most representative of the Aquapel process. The Wood Rosin, Turpentine and Pine Oil process (Subpart C) was selected as being most similar to the Aquapel process. The detailed description of this process is presented on Pages 30 and 33 and the flow diagram is presented in Figure III-2 (Page 32) of the Development Document. In this process, pine stumps are washed and chipped. The chips are then put through an azeotropic distillation process to remove water, reacted with a solvent to extract the resinous material and purified through distillation columns to separate the solvent from the final product. The solvent is then sent through a solvent recovery process to be reused.

The Wood Rosin, Turpentine and Pine Oil process (Subpart C) is most similar to Aquapel for the following reasons.

1. There is solvent extraction, recovery and reuse in both processes. The solvent recovery process is the major producer of wastewater in Aquapel.
2. Both solvent recovery processes are azeotropic distillation with like solvents.
3. Both processes use the same distillation approach to recover solvent downstream of the condenser with separation equipment and reflux a portion of the condensed solvent back into the distillation process.

4. The wood based fatty acid used as a raw material in Aquapel is similar to the rosin extracted from the stumps in the first stages of the Wood Rosin, Turpentine and Pine Oil process. Because they have similar physical properties they will behave similar in the wastewater stream.

Therefore, because the Aquapel process is not similar to the Subpart F – Rosin Based Derivatives process and is similar to the Subpart C – Wood Rosin, Turpentine and Pine Oil process, this request is for the Aquapel process to be subject to Subpart C – Wood Rosin, Turpentine and Pine Oil effluent limitations which are as follows.

	Effluent Limitations	
Effluent Characteristic	Maximum for any 1 day (lb/1000 lb of product)	Average of daily values for 30 consecutive days shall not exceed (lb/1000 lb of product)
BOD_5	2.08	1.10
TSS	1.38	0.475
pH	6.0 to 9.0	6.0 to 9.0

Anti-Backsliding Evaluation

In 9 VAC-25-31-220.L.2 the regulations allow for permits to be reissued with less stringent effluent limitations as long as certain exceptions are met. This evaluation meets the exception requirements for the following two reasons.

1. b(1) - "Information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance". The new information that is available is the detailed process information provided in this letter.
2. In the 1996 to 1998 timeframe there was a major modification of the Aquapel process to improve the quality of the final product. The multi-stage product distillation and improved solvent recovery processes were added. Therefore exception a. "Material and substantial alterations or additions to the permitted facility occurred after the permit issuance which justify the application of a less stringent effluent limitation" applies.

Using the information presented in this letter, Ashland Hercules Water Technologies is respectfully requesting a change in the effluent limits for the Aquapel process to the Subpart C – Wood Rosin, Turpentine and Pine Oil category. We are available to provide further information and clarification, if necessary.

We appreciate your consideration of this request for revised effluent limits. Please let me know if you have any questions (804-514-6365).

Sincerely,

Catherine C. Warner

Catherine C. Warner, P.E., D.E.E.

Attachments: Development Document for Proposed Effluent Limitations Guidelines, New Source Performance Standards, and Pretreatment Standards for the Gum and Wood Chemicals Point Source Category (December 1979)

Aquapel Process Flow Diagram – Confidential Business Information

cc: Sean Maconaghy – Ashland Hercules Water Technologies

DEVELOPMENT DOCUMENT

for

PROPOSED EFFLUENT LIMITATIONS GUIDELINES, NEW SOURCE PERFORMANCE STANDARDS, AND PRETREATMENT STANDARDS

for the

GUM AND WOOD CHEMICALS POINT SOURCE CATEGORY

Douglas M. Costle
Administrator

Robert B. Schaffer
Director, Effluent Guidelines Division

John E. Riley
Chief, Wood Products and Fibers Branch

William Thomson II, P.E.
Project Officer

December, 1979

Effluent Guidelines Division
Office of Water and Waste Management
U.S. Environmental Protection Agency
Washington, D.C. 20460

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

SECTION I

CONCLUSIONS

The Gum and Wood Chemicals manufacturing point source category encompasses seven industrial segments. This document provides background information and the technical data base used in the review of effluent limitations guidelines for the Gum and Wood Chemicals point source category. Technologies are defined as best practicable control technology currently available (BPT), best conventional pollutant technology (BCT), best available technology economically achievable (BAT), and pretreatment standards (PSES and PSNS).

The rationale for the exclusion of three subcategories from regulation is given in accordance with the provisions of Paragraph 8 of the Settlement Agreement in Natural Resources Defense Council, et. al. v. Train (June 8, 1976).

The Agency has extensively sampled the remaining four subcategories (50 percent of the plants were sampled in the verification phase) for the presence or absence of the 129 toxic pollutants listed in Appendix A. Many of the toxic pollutants found in the raw wastes and treated effluents originate in specific process-related raw materials and chemicals used in the manufacturing process. In the case of certain pollutants found in widely varying amounts or with erratic frequencies of occurrence, the precise sources generally remain unknown, but are not suspected to be process-related.

The rationale by which the Agency then developed effluent limitations guidelines based on each technology level is presented. A review of the previously promulgated BPT limitations demonstrated that the industry can meet the limitations with the BPT or equivalent biological technologies in use. The BPT rationale was then used to derive the BPT effluent limitations guidelines for the Sulfate Turpentine subcategory.

Based on data from the sampling program, it appears that BPT or equivalent biological treatment (including oil/water separation, activated sludge or aerated lagoons treatment, and polishing ponds) provides effective control for the organic toxic pollutants. The data available indicate that after the application of BPT technology, the organic toxic pollutants decrease to levels equal to or less than 0.2 mg/l.

Two of the subcategories, Rosin-Based Derivatives and Sulfate Turpentine, employ modification of intermediates by metallic catalysts. These catalysts - copper and nickel in sulfate turpentine and zinc in rosin-based derivatives - were detected in the effluent at a number of the plants. Therefore, for these two subcategories, EPA

proposes BAT numerical effluent limitations guidelines to limit these metallic toxic pollutants. The remaining two subcategories--Wood Rosin, Turpentine, and Pine Oil and Tall Oil Rosin, Fatty Acids, and Pitch do not use metals in their processes.

Pretreatment standards for existing sources (PSES) recognize that organic toxic pollutants in this industry are reduced by good biological treatment. Numerical effluent limitations guidelines are proposed for control of metallic toxic pollutants in the same subcategories covered by metallic toxic pollutant limitations under BAT.

New source performance standards for direct dischargers are equivalent to BPT and BAT. New source performance standards for indirect dischargers are equivalent to PSES.

The Agency estimates that the total investment cost to be incurred by existing sources, both direct and indirect dischargers, to achieve these effluent limitations guidelines (BPT for Sulfate Turpentine and BAT) and pretreatment standards (PSES) is $484 thousand, with total operating cost of $937 thousand. A total of approximately 150 additional pounds per day of conventional pollutants will be removed as a result of the proposed BPT regulations for Sulfate Turpentine. In addition, a total of 2 pounds per day of nickel, 11 pounds per day of copper, and 120 pounds per day of zinc, will be removed by compliance with BAT and PSES regulations.

Subcategories	Treatment Technology	Values for BPTCA (1977) BOD5 Maximum Day kg/1kg Product	BOD5 30-Day Average kg/1kg Product	TSS Maximum Day kg/1kg Product	TSS 30-Day Average kg/1kg Product	pH
Subcategory A Char and Charcoal Briquets						
Subcategory B Gum Rosin and Turpentine	Biological treatment and sludge disposal	1.42	0.755	0.077	0.026	≥6 to ≤9
Subcategory C Wood Rosin, Turpentine and Pine Oil	Biological treatment and sludge disposal	2.08	1.10	1.38	0.475	≥6 to ≤9
Subcategory D Tall Oil Rosin, Pitch and Fatty Acid	Biological treatment and sludge disposal	0.995	0.529	0.705	0.243	≥6 to ≤9
Subcategory E Essential Oils	Biological treatment and sludge disposal	22.7	12.0	9.01	3.11	≥6 to ≤9
Subcategory F Rosin-Based Derivatives	Biological treatment and sludge disposal	1.41	0.748	0.045	0.015	≥6 to ≤9
Subcategory G Sulfate Turpentine	Biological treatment and sludge disposal	5.504	2.924	0.686	0.236	≥6 to ≤9

Subcategories	Treatment Technology	Values for BCT BOD5 Maximum Day kg/1kg Product	BOD5 30-Day Average kg/1kg Product	TSS Maximum Day kg/1kg Product	TSS 30-Day Average kg/1kg Product	pH
Subcategory A Char and Charcoal Briquets						
Subcategory B Gum Rosin and Turpentine	BPCTCA	1.42	0.755	0.077	0.026	≥6 to ≤9
Subcategory C Wood Rosin, Turpentine and Pine Oil	BPCTCA	2.08	1.10	1.38	0.475	≥6 to ≤9
Subcategory D Tall Oil Rosin, Pitch and Fatty Acid	BPCTCA	0.995	0.529	0.705	0.243	≥6 to ≤9
Subcategory E Essential Oils	BPCTCA	22.7	12.0	9.01	3.11	≥6 to ≤9
Subcategory F Rosin-Based Derivatives	BPCTCA	1.41	0.748	0.045	0.015	≥6 to ≤9
Subcategory G Sulfate Turpentine	BPCTCA	5.504	2.924	0.686	0.236	≥6 to ≤9

Subcategories	Contaminants of Interest	Values for BATEA (1983) Treatment Technology	30-Day Average Copper mg/l	30-Day Average Nickel mg/l	30-Day Average Zinc mg/l
Subcategory A Char and Charcoal Briquets		No discharge of the process wastewater pollutants			
Subcategory B Gum Rosin and Turpentine					
Subcategory C Wood Rosin, Turpentine and Pine Oil					
Subcategory D Tall Oil Rosin, Pitch and Fatty Acids					
Subcategory E Essential Oils					
Subcategory F Rosin-Based Derivatives	Zinc	Metals Removal and Sludge Disposal			1.8
Subcategory G Sulfate Turpentine	Copper Nickel	Metals Removal and Sludge Disposal	1.8	1.8	

Subcategories	Contaminants of Interest	Treatment Technology	Values for New Source Performance Standards (NSPS) BOD5 Maximum Day kg/1kg Product	BOD5 30-Day Maximum kg/1kg Product	TSS Maximum Day kg/1kg Product	TSS 30-Day Maximum kg/1kg Product	Copper Maximum Day ug/l	Copper 30-Day Average ug/l	Nickel Maximum Day ug/l	Nickel 30-Day Average ug/l	Zinc Maximum Day ug/l	Zinc 30-Day Average ug/l	pH
Subcategory A Chair and Charcoal Briquets													
Subcategory B Gum and Rosin and Turpentine	BOD_5, TSS, pH	BPTCA	RESERVED										
Subcategory C Wood Rosin, Turpentine and Pine Oil	BOD_5, TSS, pH	BPTCA	2.08	1.10	1.38	0.475							≥6 - ≤9
Subcategory D Tall Oil Rosin, Pitch and Fatty Acids	BOD_5, TSS, pH	BPTCA	0.995	0.529	0.705	0.243							≥6 - ≤9
Subcategory E Essential Oils	BOD_5, TSS, pH	BPTCA	RESERVED										
Subcategory F Rosin-Based Derivatives	BOD_5, TSS, pH, Zinc	BPTCA and Metals Removal	1.41	0.748	0.065	0.015					4.2	1.8	≥6 - ≤9
Subcategory G Sulfate Turpentine	BOD_5, TSS, pH, Copper, Nickel	BPTCA and Metals Removal	5.504	2.924	0.686	0.236	4.5	1.8	4.1	1.8			≥6 - ≤9

Subcategories	Contaminants of Interest	Treatment Technology	Values for Pretreatment Standards for Existing Source (PSES) Copper Maximum Day mg/l	Copper 30-Day Average mg/l	Nickel Maximum Day mg/l	Nickel 30-Day Average mg/l	Zinc Maximum Day mg/l	Zinc 30-Day Average mg/l
Subcategory A Char and Charcoal Briquets								
Subcategory B Gum Rosin and Turpentine								
Subcategory C Wood Rosin, Turpentine and Pine Oil								
Subcategory D Tall Oil Rosin, Pitch and Fatty Acids								
Subcategory E Essential Oils								
Subcategory F Rosin-Based Derivatives	Zinc	Metals Treatment and Sludge Disposal					4.2	1.8
Subcategory G Sulfate Turpentine	Copper Nickel	Metals Treatment and Sludge Disposal	4.5	1.8	4.1	1.8		

Subcategories	Contaminants of Interest	Treatment Technology	Values for Pretreatment Standards for New Sources (PSNS)					
			Copper		Nickel		Zinc	
			Maximum Day mg/l	30-Day Average mg/l	Maximum Day mg/l	30-Day Average mg/l	Maximum Day mg/l	30-Day Average mg/l
Subcategory A Char and Charcoal Briquets								
Subcategory B Gum Rosin and Turpentine								
Subcategory C Wood Rosin, Turpentine and Pine Oil								
Subcategory D Tall Oil Rosin, Pitch and Fatty Acids								
Subcategory E Essential Oils								
Subcategory F Rosin-Based De ivatives	Zinc	Metals Treatment and Sludge Disposal					4.2	1.8
Subcategory G Sulfate Turpentine	Copper Nickel	Metals Treatment and Sludge Disposal	4.5	1.8	4.1	1.8		

grab sample of incoming fresh process water also was taken at each plant.

Processing of Information

The technical data base which established subcategorization within the industry (Section IV), and identified the full range of in-process and treatment technology options available within each subcategory (Section VII) consisted of the following:

1. Review of available literature and previous studies;

2. Analysis of the data collection portfolios;

3. Information from industry and trade associations;

4. Information from plant visits; and

5. Results of analyses from the screening and verification sampling programs.

The raw waste characteristics for each subcategory were then identified (Section V). This included an analysis of:

1. The source and volume of water used in the specific processes and the sources of wastes and wastewaters in the plant; and

2. The constituents of all wastewaters, including traditional and toxic pollutants.

The full range of control and treatment technologies existing within each candidate subcategory was identified. This included an identification of each existing control and treatment technology, including both in-plant and end-of-pipe systems. It also included an identification of the wastewater characteristics resulting from the application of each existing treatment and control technology.

The costs and energy requirements of each of the candidate technologies identified were then estimated (Section VIII) both for a flow-weighted average plant within the subcategory and on a plant-by-plant basis. BPT technology costs were not considered except for sulfate turpentine processing.

Additional evaluation was made of non-water quality environmental impacts, such as the effects of the application of such technologies on other pollution problems.

PROFILE OF INDUSTRY

The Gum and Wood Chemicals Industry began in the United States when early colonists harvested pine oleorosin for use in construction of naval vessels. Since that time the industry has grown and expanded as new uses have been found for pine products. One of the more significant innovations has been the development of by-products from the Kraft paper process--tall oil and sulfate turpentine--as raw materials for the Gum and Wood Chemicals Industry.

The modern Gum and Wood Chemicals Industry can be grouped into the following major areas:

1. Char and charcoal briquets;
2. Gum rosin and turpentine;
3. Wood rosin, turpentine, and pine oil;
4. Tall oil rosin, fatty acids, and pitch;
5. Essential oils;
6. Rosin derivatives; and
7. Sulfate turpentine.

Char and Charcoal Briquets

Char results from the destructive distillations of softwood and hardwood (primarily the latter). Char, in turn, may be processed into charcoal briquets or activated carbon. Pyroligneous acid was once a by-product of the process, but has been discontinued in favor of petroleum substitutes. With the rising cost of petrochemicals, some plants are considering reinstituting the recovery process.

Charcoal is one of the more economically important products of the Gum and Wood Chemicals Industry. It is widely used as a recreational fuel, in the chemical and metallurgical industries, and in other areas, including use as a filter for gaseous and liquid streams.

The char and charcoal industry in the United States consists of 77 plants primarily concentrated in the eastern section of the country, with the heaviest concentration in the Ozark and Appalachian hardwood areas. Plant ownership varies from companies with numerous plants to singly-owned plants with local product distribution.

Gum Rosin and Turpentine

In terms of product value, gum rosin and turpentine products are a minor portion of the Gum and Wood Chemicals Industry. High labor costs for gum collection coupled with competition from foreign products has reduced the number of plants and the value of product shipments and the decline will probably continue.

Currently there are only seven plants in this segment of the industry, all located in Georgia. The greatest production is concentrated in southern and southeastern Georgia. The two largest plants have diversified and now are producing rosin-based derivatives in conjunction with gum rosin and turpentine.

The raw material comes from a few remaining pine gum farmers and from gum wholesalers. Although gum rosin and turpentine are the highest quality of such products in the naval stores industry, decreasing availability of domestic gum rosins is forcing manufacturers to rely on foreign sources or to use wood or tall oil rosin in derivative operations.

Wood Rosin, Turpentine, and Pine Oil

Wood rosin, turpentine, and pine oil produced by the solvent extraction and steam distillation of rosinous wood stumps, account for 19 percent of the total product value of the Gum and Wood Chemicals Industry, according to the 1972 Census of Manufacturers. The economic life of this segment of the industry is limited by diminishing raw materials and the development of competitive processes.

Historically, the industry used the pine stumps remaining from the harvesting of first-generation southern pine forests in the early part of the twentieth century. Few such stumps remain at the present time and second-generation stumps contain considerably lower rosin content.

This segment of the industry consists of five plants--one in Mississippi, three in Florida, and one in Georgia. Each plant occupies a land area of 40 to 60 hectares (100 to 150 acres), the majority of which is used for raw material storage. Three of the plants are located in urban areas; the remaining two are in rural settings.

Tall Oil Rosin, Fatty Acids, and Pitch

The growth of tall oil refining has continued since 1949; however, the production of fatty acids and rosins with low cross-product contamination is a fairly recent development.

Crude tall oil is particularly attractive as a raw material because of its availability as a "waste" product of the Kraft pulp and paper industry; this segment of the industry, therefore, provides increasing supplies of raw materials for tall oil fractionators. While there is a steady decline in naval stores production from gum and wood extraction, there is a corresponding production increase from tall oil.

Recent trends in the amount of tall oil produced by the kraft process have indicated a reduced rate of increase in the amount available. This has resulted from changes both in the Kraft process and in the Kraft process raw materials. More hardwood and younger growth pines are in use so that less oleoresin is available. If this trend continues, the availability of tall oil may decline.

Twelve tall oil distillation plants are currently in operation, primarily in the Southeast. Two additional plants are not in operation, but could be made operational if economic conditions so dictated.

Essential Oils

The essential oils produced in the Gum and Wood Chemicals Industry are cedarwood oil and pine scent. Cedarwood oil is produced by the steaming of cedarwood sawdust in pressure retorts to remove the oil from wood particles. One plant produces pine leaf oil for use as a scent in Christmas products. Pine needles are steamed to extract the oil.

In the eastern United States, cedarwood oil is a by-product of the production of cedarwood lumber and furniture from Juniperus virginiana. This wood contains 2 to 4 percent oil. Currently three plants produce cedarwood oil from this type of cedarwood.

In the western portion of the country, cedarwood oil is produced directly from a tree of the Cedarus family which is unsuitable for lumber production. Five plants use this raw material. The process involves grinding the whole tree into wood dust and extracting the oil by steaming.

The growing concerns in the industry are competition with synthetic oils and the dwindling supply of trees as raw material.

Rosin-Based Derivatives

Rosin-based derivatives are not included in SIC 2861, Gum and Wood Chemicals, but in SIC 2821, Plastics and Synthetic Materials. However, derivatives production is a natural extension of processing in Gum and Wood Chemicals plants since the rosin is available in the

plants. This study applies only tc those derivatives operations which are located within and in conjunction with Gum and Wood Chemicals facilities.

Currently 13 Gum and Wood Chemicals plants are prcducing rosin derivatives. These plants are located within all four types of rosin producing plants.

Of all the Gum and Wood Chemicals processing operations, derivatives prccessing is the most profitable, at least partly due to a large product and market development effort in the industry. Derivatives products include ink resins, paint additives, paper size, oil additives, adhesives, wetting agents, chewing gum base, and chemical-resistant resins.

Sulfate Turpentine

Sulfate turpentine originally was considered a waste product in the digester relief gas of the Kraft pulp and paper process; with modern technology, however, it can be profitably recovered to such an extent that sulfate turpentine is the major source of turpentine in the Gum and Wood Chemicals Industry.

The distillation of sulfate turpentine yields four major compounds-a-pinene, b-pinene, dipentene, and pine cil. The primary uses of these compounds are for flavor, fragrances, resins, and insecticides. While b-pinene and dipentene are the components of greatest use, new methods and markets currently are being developed for a-pinene.

Turpene derivatives--generally produced in conjunction with sulfate turpentine distillation with b-pinene and dipentene as raw materials--prcvide tack (stickiness) in polymeric mixtures and pressure sensitive tapes.

DESCRIPTIONS OF PROCESSES

Char and Charcoal Briquets

Char and charcoal result from the combustion (thermal decomposition) of raw wood which drives off gases and vapors and leaves about one-third of the wood, by weight, as charcoal. Commercial charcoal is produced at a temperature of about 400° tc 500°C.

During carbonization, distillates--collectively referred to as pyroligneous acid--are formed. Pyroligneous acid contains such compounds as methanol, acetic acid, acetone, tars, and oils. Because synthetic substitues are cheaper, current industry practice does not recover the by-products, but feeds the distillate and other flue gases to an afterburner for thermal destruction before exhausting them to

the atmosphere. This study found no facilities in the United States which recover distillation by-products. The condensable distillates or vapor also may be recycled as a fuel supply supplement, but this is not common in the industry.

Gum Rosin and Turpentine

Crude gum is obtained from healthy pines by exposing the sapwood. This operation usually takes place during December or January, since early removal of the bark stimulates early gum flow in the spring. The main flow of gum occurs from March through September, with the wound typically being treated with sulfuric acid to prolcng the period of flow.

The processing plants receive the raw gum, composed of about 68 percent rosin and 20 percent turpentine, in 197.3 kg (435 1b) barrels. A typical process flow schematic is shown in Figure III-1. The gum is emptied into a vat by inverting the crude gum containers over a high-pressure steam jet. This mixture is then filtered and washed, and the prepared crude gum material is distilled to separate the turpentine frcm the gum rosin. Non-contact shell-and-tube steam heating and sparging steam are used in the stills. Turpentine and water are distilled overhead and condensed with shell-and-tube condensers. The water is separated from the turpentine in the downstream receivers.

The gum rosin is removed from the bottom of the still and transferred to shipping containers while the rosin is in a molten state. Wastewater usually originates in three areas:

1. The liquid waste from the raw gum wash tank;

2. The water fraction from the turpentine-water separator; and

3. In some plants, a brine waste frcm a sodium chloride dehydration used to dewater the turpentine.

Wood Rosin, Turpentine and Pine Oil

Figure III-2 shows a typical process diagram. Pine stumps are washed in the plant and the water and sediment flow to a settling pond from which water recycles back to the washing operation. Wood hogs, chippers, and shredders mechanically reduce the wood stumps to chips approximately 5 centimeters (2 inches) in length and 3 millimeters (1/16 inch) thick. The chips are fed to a battery of retort extractors, which employ the following steps:

1. Water is removed from the chips by azeotropic distillation with a water-immiscible solvent;

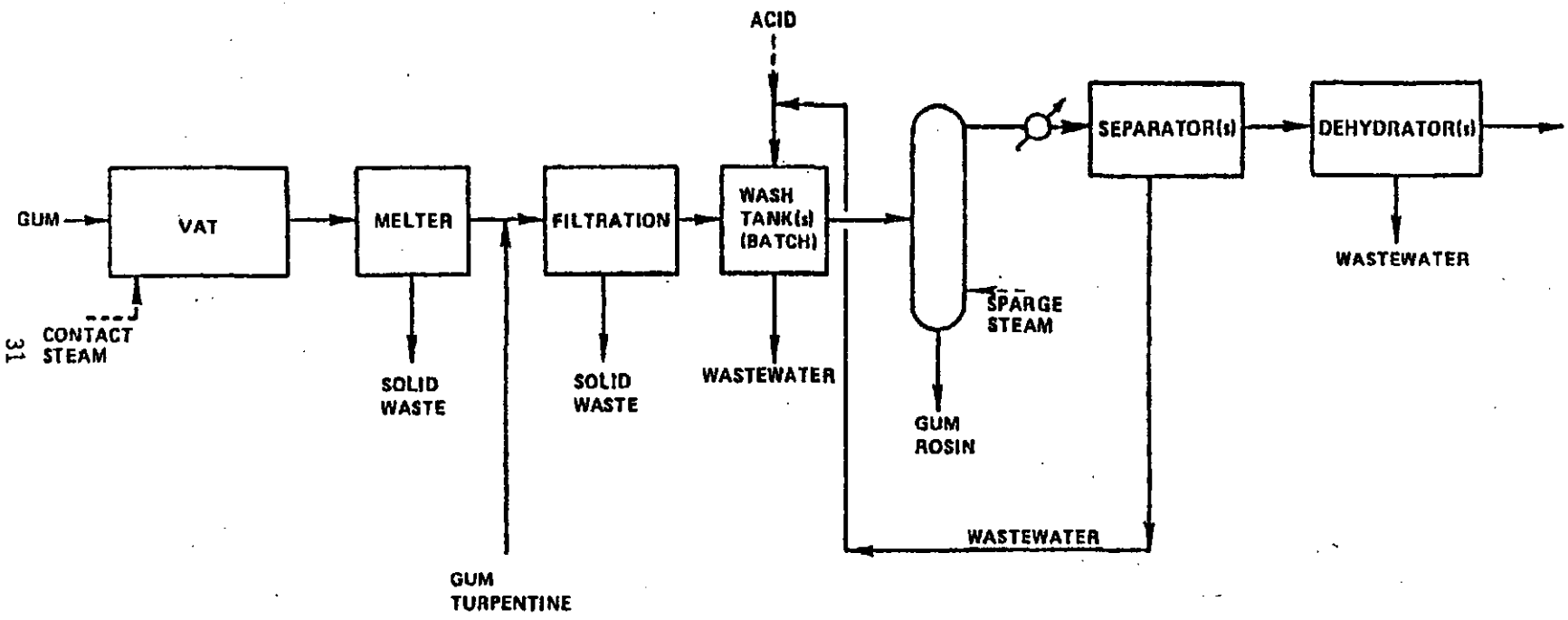


Figure III- 1.

GUM ROSIN AND TURPENTINE PRODUCTION

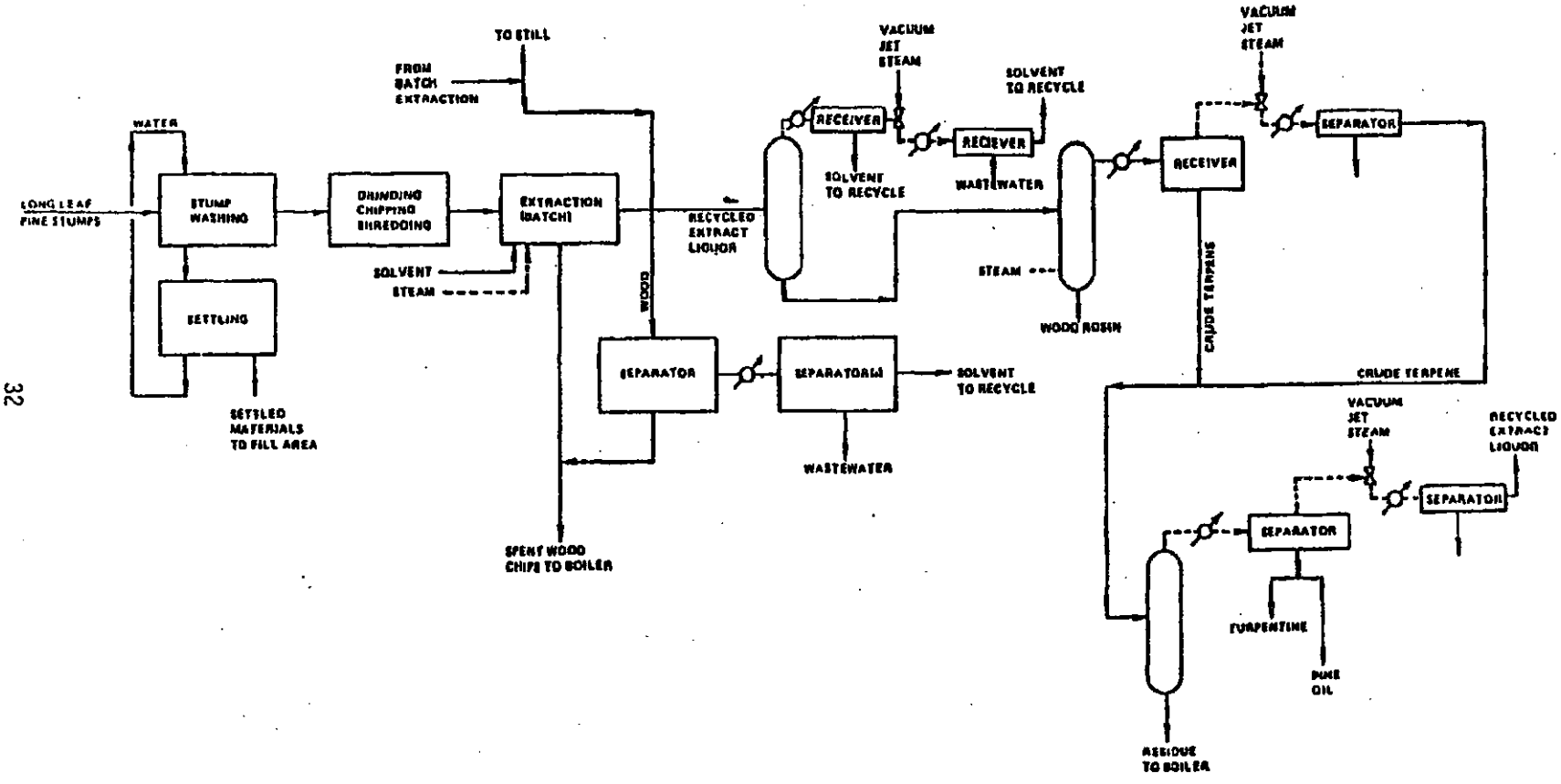


Figure III-2.

WOOD ROSIN, PINE OIL, AND TURPENTINE VIA SOLVENT EXTRACTION

2. The resinous material is extracted from the wood chips with a water-immiscible solvent; and

3. Residual solvent is removed from the spent wood chips by steaming.

After the steaming step, spent chips are removed from the retort and sent to the boilers as fuel. Any entrained wood fines coming from the retorts are removed in the entrainment separator and used also as fuel. The vapors from the entrainment separator are condensed and proceed to one or more separators where the solvent-water mixture separates. The solvent is recycled for use in the retorts.

The extract liquor is sent to a distillation column to separate the solvent from the products. The overhead from the column is condensed and enters a separator where condensed solvent is removed and recycled to the retorts. The vapor phase from the separator condenses in a shell-and-tube exchanger and enters a separator in which the remaining solvent and is separated. The solvent is sent to recycle and wastewater to treatment.

The bottom stream from the first distillation column enters a second distillation column, as shown in Figure III-2. Steam introduced into the bottom of the tower strips off the volatile compounds. This overhead steam enters a condenser and separator. A portion of the condensed liquor phase is refluxed back to the distillation column, but a larger portion is stored as crude turpene for further processing. The non-aqueous phase from the separator is stored as crude turpene while the aqueous phase is removed as wastewater. The bottom stream from the second distillation column is the finished wood rosin product.

The crude turpene removed in the second distillation column is stored until a sufficient quantity accumulates for processing in a batch distillation column. The distillation column is charged with the crude turpene material, and the condensed material enters a separator. The turpene and pine oil products are removed from the separator, while the vapors and steam from the steam ejector enter a second shell-and-tube exchanger and proceed to a separator. The bottom from this batch distillation column is a residue containing high-boiling point materials, best described as pitch, which are used as fuel.

Tall Oil Rosin, Fatty Acids, and Pitch

A schematic process flow diagram of a typical crude tall oil fractionation process is presented in Figure III-3.

The crude tall oil is treated with dilute sulfuric acid to remove some residual lignins as well as mercaptans, disulfides, and color

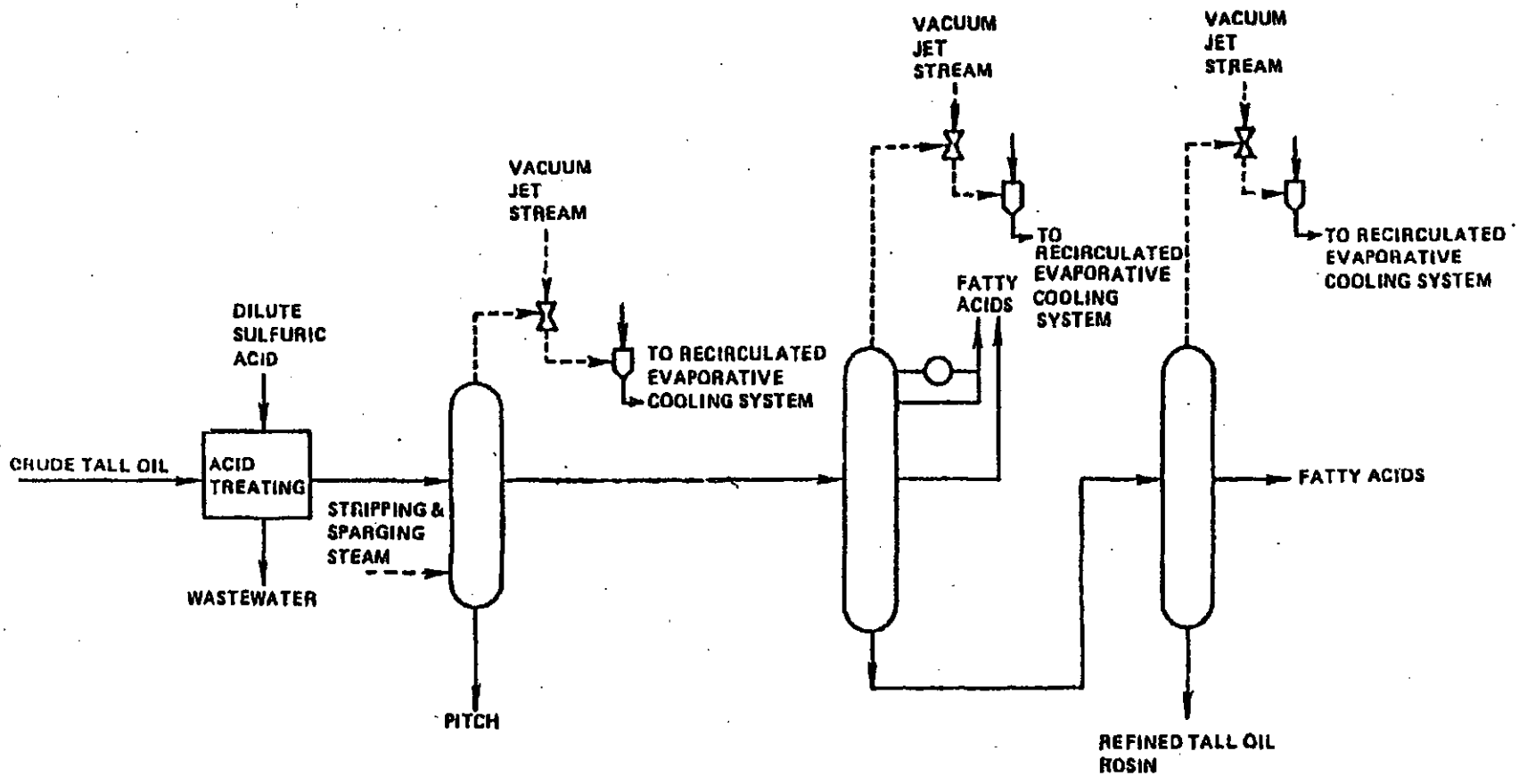


Figure III- 3.

CRUDE TALL OIL FRACTIONATION AND REFINING

materials. Acid wash water is discharged to the process sewer. The stock then proceeds to the fractionation process. In the first fractionation column, the pitch is removed from the bottoms and is either sold, saponified for production of paper size, or burned in boilers as fuel. The remaining fraction of the tall oil (rosin and fatty acid) proceeds to the pale plant, which improves the quality of the raw materials by removing unwanted materials such as color bodies. The second column separates low-boiling point fatty acid material, while the third column completes the separation of fatty and rosin acids.

The wastewater generated in this subcategory results from pulling a vacuum on the distillation towers. This water generally is recycled, but excess water is discharged to the plant sewer.

Essential Oils

Figure III-4 is a typical process flow schematic diagram for steam distillation of cedarwood oil from scrap wood fines of red cedar.

Raw dry dust from the planing mill and raw grain dust from the sawmill are mixed to obtain a desired blend and then fed pneumatically to mechanical cyclone separators located on top of the retorts. The cedarwood oil is extracted by injecting steam directly into the retort. The steam diffuses through the cedarwood dust, extracts the oil of cedarwood, exits through the top of the retort, and condenses to an oil/water mixture. Following the steam extraction, the spent sawdust cools. It is then stored and eventually sent to the boiler as a fuel.

The primary product is a crude light oil which is separated by two oil/water separators immediately downstream of the condensers. The light oil is removed and mixed with clay which lightens the product by removing color bodies and stabilizes the color of the product by inhibiting further oxidation. The clay/oil slurry is filtered through plate and frame filter presses, and the spent clay-filter material is hauled to landfill for final disposal. The lightened oil product proceeds to bulk storage and blending, and is finally drummed for shipment.

The water phase, which is separated in the stillwells, contains a heavy red crude oil. This material is separated from the water phase in three consecutive settling tanks. The heavy red oil is periodically removed and drummed for sale as a by-product, while the underflow, or remaining water phase, is discharged as wastewater.

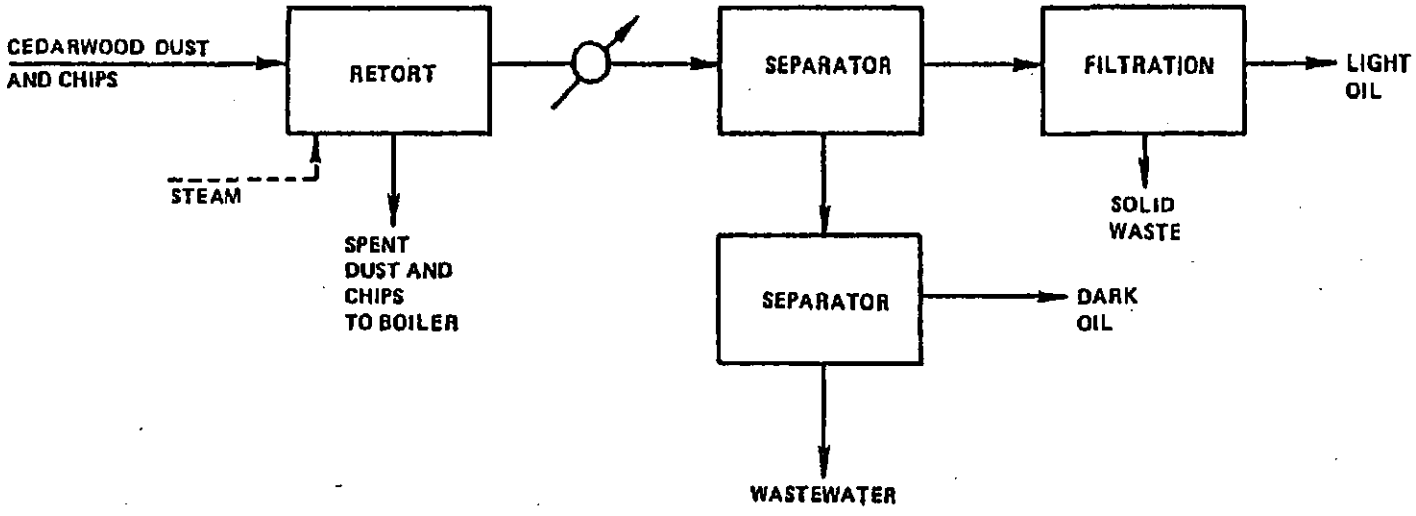


Figure III-4.

DISTILLATION AND REFINING OF ESSENTIAL OILS

Rosin Derivatives

Figure III-5 illustrates a typical rosin derivative process. Process operating conditions in the reaction kettle depend on product specifications, raw materials, and other variables. A simple ester is produced from stump wood rosin (WW grade) and U.S.P. glycerin under high-temperature vacuum conditions. A steam sparge (lasting approximately 2-3 hours) removes excess water of esterification; this allows completion of the reaction and removes fatty acid impurities for compliance with product specifications. The condensable impurities are condensed in a non-contact condenser on the vacuum leg and stored in a receiver. Non-condensables escape to the atmosphere through the reflux vent and steam vacuum jets. The production of phenol and maleic anhydride modified tall oil resin ester is similar to simple rosin ester production except that steam sparging is seldom, if ever, used; and other polyhydric alcohols may be used in the product formulation.

Wastewater comes from the chemical reaction, separation of product, and wash down of reaction vessels.

Sulfate Turpentine

Figure III-6 is a simple process flow schematic diagram for distillation of sulfate turpentine, which is condensed from the relief gas from the digestor of the Kraft pulping process. During distillation, the first tower usually strips odor-causing mercaptans from the turpentine. Subsequent fractionation breaks the turpentine into its major components: alpha-pinene, beta-pinene, dipentene, and sulfated pine oil. Minor components include limonene, camphene, and anethol.

The distillation of sulfate turpentine is an intermediate production step. Some of these turpentine components are marketed after distillation, but the majority of them remain in the plant for further processing.

The operations are usually batch reactions that take place in reaction kettles in the presence of some organic solvent and metal catalyst. The selection of catalysts and solvents depends on the desired products, of which there are approximately 200.

Wastewater usually is generated from the condensation in the distillation tower and from wash down of reactors.

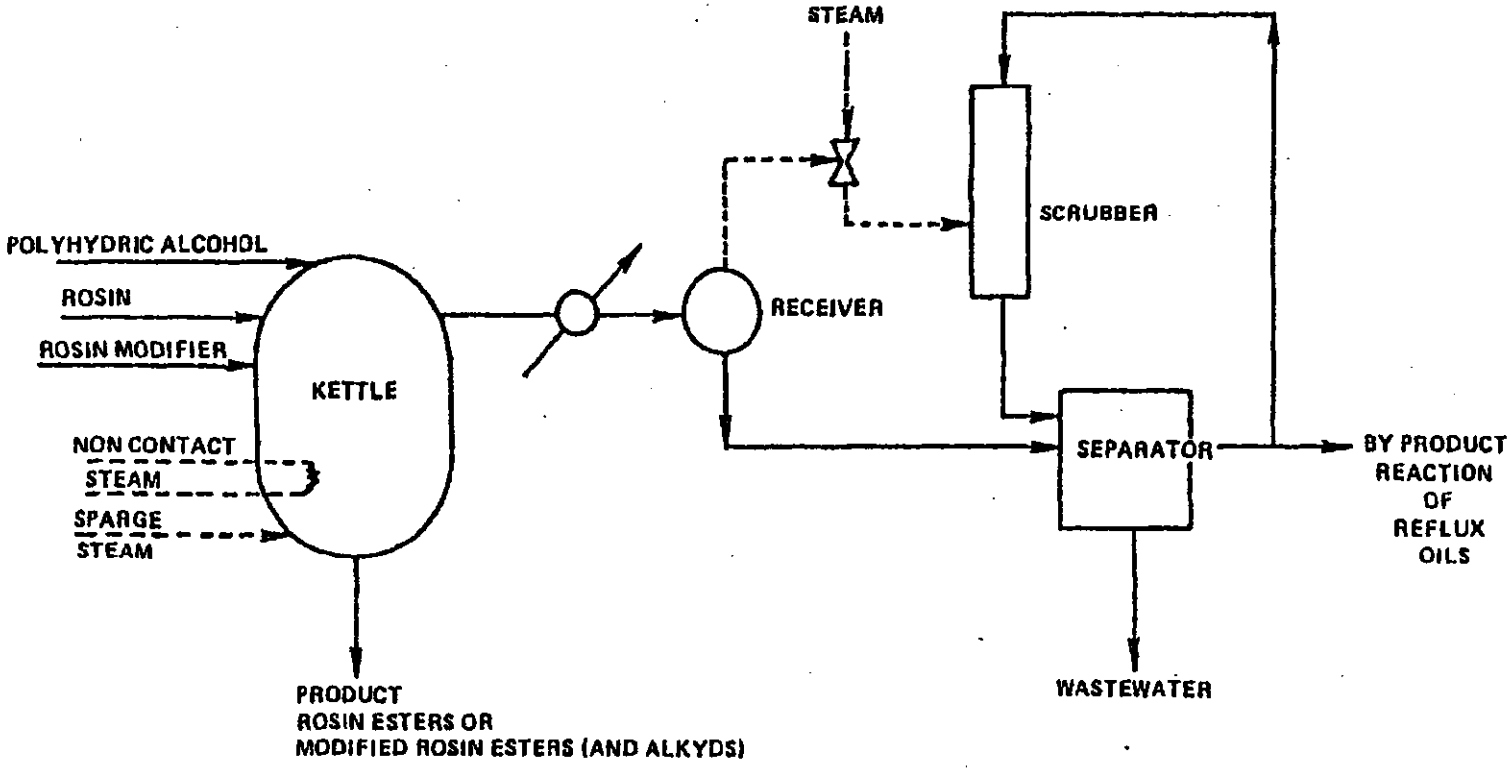


Figure III-5.

ROSIN DERIVATIVES MANUFACTURE

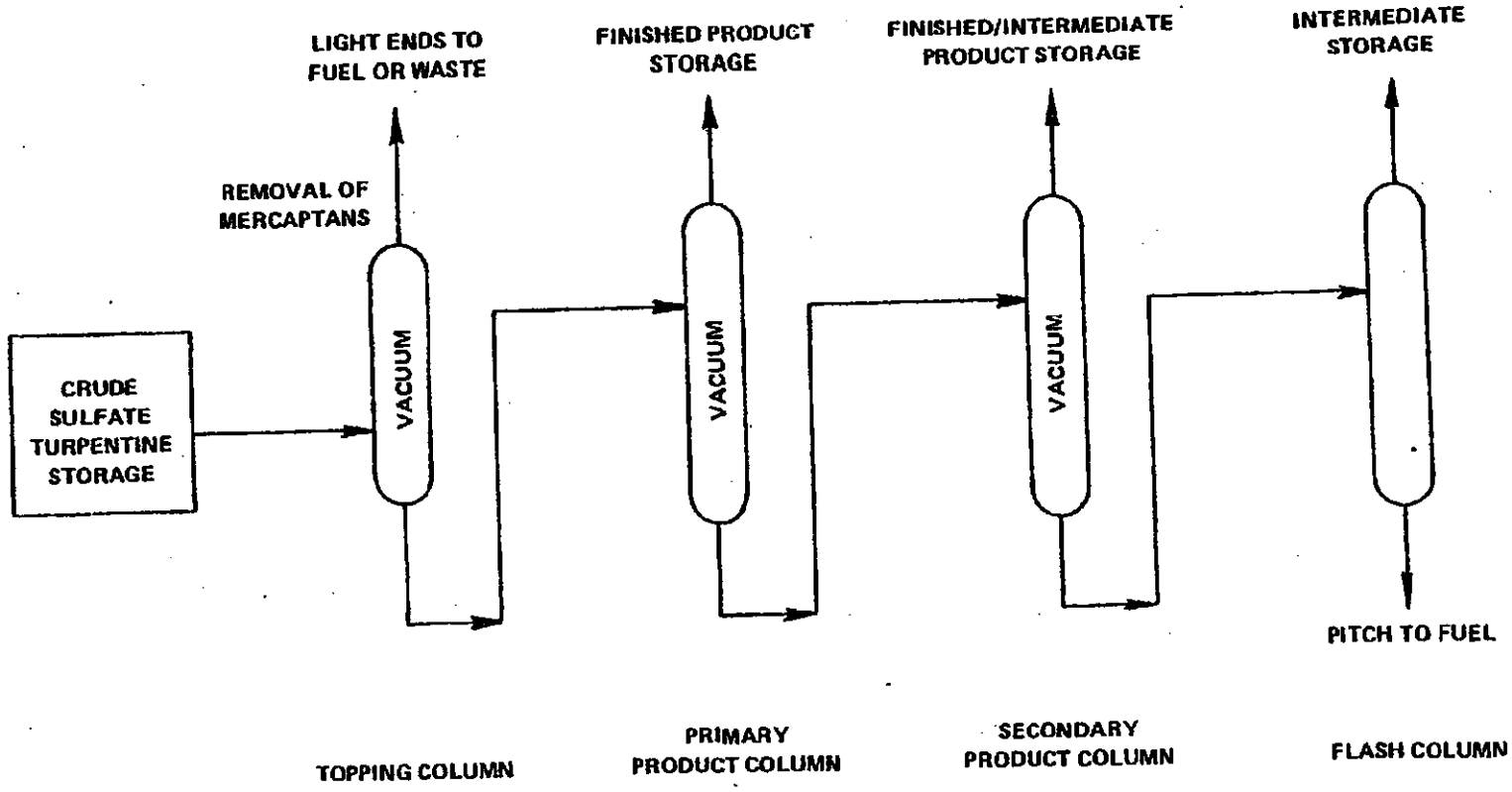


Figure III- 6.

BASIC PROCESS FLOW
TURPENTINE DISTILLATION

SECTION IV

INDUSTRIAL SUBCATEGORIZATION

Review of existing industrial subcategorization for the Gum and Wood Chemicals Industry required a determination of whether sufficient differences exist within the industry to support the current subcategorization scheme, or whether modifications are required. The rationale for subcategorization is based upon such factors as: (1) plant characteristics and raw materials; (2) wastewater characteristics, including toxic pollutant characteristics; (3) manufacturing processes; and (4) applicable methods of wastewater treatment and disposal.

In developing the previously published effluent limitation guidelines and pretreatment standards for the industry, EPA determined that plants exhibited sufficient differences to justify multiple subcategorization. That subcategorization was as follows:

1. Char and charcoal briquets;
2. Gum rosin and gum turpentine;
3. Wood rosin, turpentine, and pine oil;
4. Tall oil rosin, pitch, and fatty acids;
5. Essential oils; and
6. Rosin derivatives.

The subcategorization review confirmed the above subcategories were appropriate, except that a seventh subcategory, Sulfate Turpentine, should be included.

SUBCATEGORIZATION REVIEW

The Agency considered the following factors in the subcategorization review:

1. Manufacturing process;
2. Plant location and climate;
3. Raw materials;
4. Plant age, size, and flow;

5. Products; and

6. Wastewater characteristics and treatability.

Manufacturing Process

The process step common to gum, wood, tall oil chemical, essential oils, and sulfate turpentine production is the use of steam distillation to separate the major constituents. However, there is a large difference in the degree of technology used in the five processes. Wood, rosin, tall oil chemicals, and sulfate turpentine use fractionation towers for multi-product separation. The gum and essential oil subcategories use simple reactors to separate the volatile from the non-volatile components.

The production of charcoal and rosin-based derivatives differs from the other processes because steam distillation is not employed. Charcoal is a destructive distillation product of wood. The production of rosin-based derivatives is not a distillation but a chemical modification. For some reactions, a catalyst is employed. The Agency has determined that these distinct manufacturing processes are a basis for subcategorization.

Plant Location and Climate

The 1972 Census of Manufacturers places the majority of the gum and wood chemicals production facilities in the southern states (see Figures IV-1 and IV-2). These plants produced over 84 percent of the industry output in terms of dollar value added to the raw material.

Plant location and local climate can affect the performance of certain end-of-pipe wastewater treatment systems, e.g., aerated lagoons and activated sludge. However, treatment systems including biological treatment, can be adapted to the small variation in climate found in the Gum and Wood Chemicals Industry. Plant location and climate are not criteria for subcategorization because of the general southeastern location of the plants and the adaptability of the treatment systems to climatic conditions.

Outfall 202

This new internal outfall will receive discharge from the treatment of wastewater holding lagoon and sludge pit dewatering in conjunction with an EPA-lead RCRA facility corrective action plan (CAP). Part of the CAP involves dewatering the existing wastewater lagoon and sludge pit. The wastewater from these structures will be treated either by portable treatment and discharged to the discharge ditch leading to outfall 002 or at the existing plant combined wastewater treatment system and discharged to the outfall 201 location.

The decision was made based on discussions with EPA Permitting and RCRA staff to require treatment and to require the discharge from this operation to meet effluent limitations prior to entering the ditch rather than applying the limitations to outfall 002 to ensure proper treatment and minimize the effect of dilution on the discharge from these CAP activities.

The permittee may elect to treat the wastewater lagoon and sludge pit dewatering through the existing facility treatment system rather than through a separate portable system. Should the permittee elect to treat the dewatering discharges in this manner, separate samples will be collected for outfall 201 and outfall 202 and the samples must be analyzed separately and reported separately on the respective outfall 201 and outfall 202 DMR's. Sampling for outfall 202 will only be required at times when dewatering discharges are occurring.

Effluent limitations are based on review of data supplied by the permittee during the RCRA CAP process, water quality standards, effluent guidelines for the industry and best professional judgment (BPJ)to protect water quality. See Attachment 14 for additional correspondence regarding this discharge. Specific limitations, monitoring requirements and rationales follow.

Flow: No limit, monthly average and daily max, measured at 1/week frequency based on BPJ. This is a standard requirement for industrial permits based on the VPDES permit manual.

pH: Minimum of 6.0 S.U. and maximum of 9.0 S.U. monitored 1/week by grab sample. This is based on BPJ to protect water quality and is typical for VPDES permits for industrial facilities.

BOD: Monthly Average concentration of 157 mg/l and daily max concentration of 296 mg/l monitored 1/week by grab sample. This is based on the federal effluent guidelines 40 CFR 454 subparts D and C and is identical to the concentration limits at the process water internal outfall. This effluent consists of stored process wastewater and process sludge pit dewatering, and applying the guideline limitations for concentration is appropriate. Since the discharges at this internal outfall is based on treatment of stored wastewater and not based on production, applying mass limitations to this discharge is not appropriate.

TSS: Monthly Average concentration of 69 mg/l and daily max concentration of 201 mg/l monitored 1/week by grab sample. This is based on the federal effluent guidelines 40 CFR 454 subparts D and C and is identical to the concentration limits at the process water internal

outfall. This effluent consists of stored process wastewater and process sludge pit dewatering, and applying the guideline limitations for concentration is appropriate. Since the discharges at this internal outfall is based on treatment of stored wastewater and not based on production, applying mass limitations to this discharge is not appropriate.

Total Petroleum Hydrocarbons: Monthly Average and daily maximum limitations on 30 mg/l is based on BPJ and is consistent with TPH limitations for industrial wastewaters. Monitoring will be 1/week by grab sample. Review of data supplied by the permittee indicates TPH in both the DRO and GRO fractions present in the wastewaters, though the GRO fractions was detected at low concentrations. Monitoring TPH by measuring both fractions will provide for the most protective limitations to protect water quality.

Total Nitrogen and Total Phosphorus: These parameters are monitored only with no limit 1/month by grab samples. This is based on BPJ to determine any nutrient addition from this discharge to the receiving stream, which is listed as a nutrient enriched water in Virginia's water quality standards. There has been no indication that these nutrients are present in the discharge in elevated concentrations, but review of the data indicate some phosphorus and nitrogen present. Total phosphorus is limited at the external outfall 002 at a concentration that meets the DEQ standard for phosphorus in nutrient enriched waters outside the Chesapeake Bay watershed, so no limitations on the internal outfall is warranted.

Benzene: Maximum limitation of 50 ug/l, monitored 1/month by grab sample is based on water quality standards for freshwater and is due to benzene detected in the wastewater at relatively low concentration in the wastewater lagoon but was detected at approximately one-half the limitation in the sludge pit. The limit is imposed to protect water quality.

Toluene: Maximum limitation of 175 ug/l, monitored 1/month by grab sample is based on water quality standards for freshwater and is due to toluene detected in the wastewater. The limit is imposed to protect water quality. Toluene is a known component of the process at the facility and was detected in the sludge pit more than in the wastewater pit.

p-Cresol: Maximum limitation of 14 ug/l, monitored 1/month by grab sample is based on water quality standards for freshwater and is due to m & p Cresol detected in the wastewater and in the sludge pit at concentrations that may contravene water quality standards. The limit is imposed to protect water quality.

Phenol: Maximum limitation of 15 ug/l, monitored 1/month by grab sample is based on water quality standards for freshwater and is due to phenolic compounds detected in the wastewater and in the sludge pit at concentrations that may contravene water quality standards. The limit is imposed to protect water quality. Phenol was used as the indicator species for the total phenolic compounds that may be present in the discharge.

Total Recoverable

Cadmium: Maximum limitation of 3.9 ug/l, monitored 1/month by grab sample is based on water quality standards for freshwater and is due to cadmium detected in the sludge pit at relatively low concentration, but the detection level used in the analysis of the wastewater was above the limit so no useable data exist to determine the exact concentration in the wastewater. The limit is imposed to protect water quality and is based on concentrations on the sludge pit.

Outfall 902

Flow: Estimate of total flow in Million Gallons (MG) is monitored and reported once per year. This is a standard frequency and sampling type for storm water discharges in VPDES industrial permits.

pH: Grab sample at a monitoring frequency of once per year is based on BPJ for storm water outfalls at industrial facilities. Effluent limits of 6.0 s.u. minimum and 9.0 s.u. maximum are imposed on this outfall based on BPJ to protect water quality in the receiving stream. These limits are the same as the pH limits for outfall 002, of which this storm water discharge is a component.

BOD5: Grab sample at a monitoring frequency of once per year is based on BPJ for storm water outfalls at industrial facilities. Maximum reporting only with no limit. This requirement is based on BPJ for this organic chemical manufacturing facility.

Total Petroleum Hydrocarbons: Grab sample at a monitoring frequency of once per year is based on BPJ for storm water outfalls at industrial facilities. Maximum reporting only with no limits. This parameter is a good indicator in determining the effectiveness of BMPs at the facility. This is based on BPJ and is a standard indicator parameter at industrial facilities.

Chemical Oxygen Demand: Grab sample at a monitoring frequency of once per year is based on BPJ for storm water outfalls at industrial facilities. Maximum reporting only with no limits. This parameter is a good indicator in determining the effectiveness of BMPs at this organic chemical industrial facility. This is based on BPJ.

Total Suspended Solids: Grab sample at a monitoring frequency of once per year is based on BPJ for storm water outfalls at industrial facilities. Maximum reporting only with no limits. This parameter is a good indicator in determining the effectiveness of BMPs at the facility. This is based on BPJ and is a standard indicator parameter at industrial facilities.

Based on the General Permit Regulation for Storm Water Associated with Industrial Activity, specifically Sector C, Chemical and Allied Products Manufacturing, 9 VAC 25-151-110, there are no effluent limitations or benchmark monitoring requirements for storm water at facilities in the SIC codes 2861-2869 or 2899. There are specific special conditions associated with this Sector category, which will be addressed under the Special Conditions section in the permit and fact sheet.

Outfalls 003, 004, 005, 006

Flow: Estimate of total flow in Million Gallons (MG) is monitored and reported once per year. This is a standard frequency and sampling type for storm water discharges in VPDES industrial permits.

pH: Grab sample at a monitoring frequency of once per year is based on BPJ for storm water outfalls at industrial facilities. Minimum and maximum reporting only with no limits. This parameter is a good indicator in determining the effectiveness of BMPs at the facility. This is based on BPJ and is a standard indicator parameter at industrial facilities.

Total Petroleum Hydrocarbons: Grab sample at a monitoring frequency of once per year is based on BPJ for storm water outfalls at industrial facilities. Maximum reporting only with no limits. This parameter is a good indicator in determining the effectiveness of BMPs at the facility. This is based on BPJ and is a standard indicator parameter at industrial facilities.

Chemical Oxygen Demand: Grab sample at a monitoring frequency of once per year is based on BPJ for storm water outfalls at industrial facilities. Maximum reporting only with no limits. This parameter is a good indicator in determining the effectiveness of BMPs at this organic chemical industrial facility. This is based on BPJ.

Total Suspended Solids: Grab sample at a monitoring frequency of once per year is based on BPJ for storm water outfalls at industrial facilities. Maximum reporting only with no limits. This parameter is a good indicator in determining the effectiveness of BMPs at the facility. This is based on BPJ and is a standard indicator parameter at industrial facilities.

Based on the General Permit Regulation for Storm Water Associated with Industrial Activity, specifically Sector C, Chemical and Allied Products Manufacturing, 9 VAC 25-151-110, there are no effluent limitations or benchmark monitoring requirements for storm water at facilities in the SIC codes 2861-2869 or 2899. There are specific special conditions associated with this Sector category, which will be addressed under the Special Conditions section in the permit and fact sheet.

Guidance Memo 96-001 recommends that chemical water quality-based limits not be placed on storm water outfalls at this time because the methodology for developing limits and the proper method of sampling is still a concern and under review by EPA. Therefore, in the interim, screening criteria have been established at 2 times the acute criteria. These criteria are applied solely to identify those pollutants that should be given special emphasis during development of the Storm Water Pollution Prevention Plan (SWPPP). Any storm water outfall data (pollutant specific) submitted by the permittee which were above the established screening criteria levels requires monitoring in Part I.A. of the permit for that specific outfall and pollutant. For this facility, no data were above the established screening criteria, so no parameters are specifically included in the storm water management evaluation section of the SWPPP.

The SWPPP required in this permit is designed to reduce pollutants in storm water runoff. The goal of the SWPPP is to reduce pollutants to the maximum extent practicable. An annual report is to be submitted to the Regional office and shall include the data collected the previous year with an indication if the SWPPP or any BMPs were modified based on the monitoring results.

During the modification request, the permittee requested that these outfalls, including new outfalls 004, 005 and 006 be considered substantially identical and that only Outfall 003 be sampled. This request was considered and it was determined that a better option would be to sample each outfall during the remainder of this permit term and use that sampling information to provide evidence that the outfalls are substantially identical or are not. Based on the results of visual and analytical monitoring during the remainder of this permit term, the outfalls may be considered substantially identical at the reissuance of this permit in 2012.

Water Quality Standards and Wasteload Allocations

Permittee:	Hercules, Inc.	Flows (MGD):	Design	2		90th % stream pH	7.18	MIX% for chronic WLA	100
Permit No.	VA0003433		7Q10	19.38	(chronic)	10th % stream pH	6.2	MIX% for acute WLA	11
Receiving Stream:	Nottoway River		1Q10	18.09	(acute)	90th % stream temp	26		
WQ Tier	2	(1 or 2)	30Q5	42	(human health - noncarcinogen)	mean effluent hardness			
Public Water Supply?	2	(1 = yes, 2 = no)	HM		(human health - carcinogen)	mean stream hardness	33.3	(note: 25 mg/l minimum)	

Parameter	Background	Water Quality Standard				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenapthene	0			1.2E+03	2.7E+03			na	5.9E+04			1.2E+02	2.7E+02			na	5.9E+03			na	5.9E+03
Aldrin [C]	0	3.0E+00	3.0E-01	1.3E-03	1.4E-03	6.0E+00	3.2E+00	na	1.4E-03	7.5E-01	7.5E-02	1.3E-04	1.4E-04	7.5E+00	8.0E-01	na	1.4E-04	6.0E+00	8.0E-01	na	1.4E-04
Ammonia-N (mg/l)	0.032	1.7E+01	2.0E+00			3.3E+01	2.1E+01			4.2E+00	5.3E-01			4.2E+01	5.4E+00			3.3E+01	5.4E+00		
Anthracene	0			9.6E+03	1.1E+05			na	2.4E+06			9.6E+02	1.1E+04			na	2.4E+05			na	2.4E+
Antimony	0			1.4E+01	4.3E+03			na	9.5E+04			1.4E+00	4.3E+02			na	9.5E+03			na	9.5E
Arsenic	0			5.0E+01				na				5.0E+00				na				na	
Arsenic III	0	3.6E+02	1.9E+02			7.2E+02	2.0E+03			9.0E+01	4.8E+01			9.0E+02	5.1E+02			7.2E+02	5.1E+02		
Barium	0			2.0E+03				na				2.0E+02				na				na	
Benzene [C]	0			1.2E+01	7.1E+02			na	7.1E+02			1.2E+00	7.1E+01			na	7.1E+01			na	7.1E+01
Benzo(a)anthracene [C]	0			4.4E-02	4.9E-01			na	1.1E+01			4.4E-03	4.9E-02			na	4.9E-02			na	4.9E-02
Benzo(b)fluoranthene [C]	0			4.4E-02	4.9E-01			na	1.1E+01			4.4E-03	4.9E-02			na	4.9E-02			na	4.9E-02
Benzo(k)fluoranthene [C]	0			4.4E-02	4.9E-01			na	1.1E+01			4.4E-03	4.9E-02			na	4.9E-02			na	4.9E-02
Benzo(a)pyrene [C]	0			4.4E-02	4.9E-01			na	4.9E-01			4.4E-03	4.9E-02			na	4.9E-02			na	4.9E-02
Bromoform [C]	0			4.4E+01	3.6E+03			na	3.6E+03			4.4E+00	3.6E+02			na	3.6E+02			na	3.6E+02
Butylbenzylphthalate	0			3.0E+03	5.2E+03			na	1.1E+05			3.0E+02	5.2E+02			na	1.1E+04				1.1E+04
Cadmium	0	5.2E-01	4.4E-01			1.0E+00	4.7E+00			2.5E-01	1.1E-01			2.5E+00	1.2E+00			1.0E+00	1.2E+00		
Carbon Tetrachloride [C]	0			2.5E+00	4.5E+01			na	4.5E+01			2.5E-01	4.5E+00			na	4.5E+00			na	4.5E+00
Chlordane [C]	0	2.4E+00	4.3E-03	5.8E-03	5.9E-03	4.8E+00	4.6E-02	na	5.9E-03	6.0E-01	1.1E-03	5.8E-04	5.9E-04	6.0E+00	1.1E-02	na	5.9E-04	4.8E+00	1.1E-02	na	5.9E-04
Chloride	0	8.6E+05	2.3E+05	2.5E+05		1.7E+06	2.5E+06	na		2.2E+05	5.8E+04	2.5E+04		2.2E+06	6.1E+05	na		1.7E+06	6.1E+05	na	
TRC	0	1.9E+01	1.1E+01			3.8E+01	1.2E+02			4.8E+00	2.8E+00			4.8E+01	2.9E+01			3.8E+01	2.9E+01		
Chlorodibromomethane	0			6.9E+02	5.7E+04			na	1.3E+06			6.9E+01	5.7E+03			na	1.3E+05			na	1.3
Chloroform [C]	0			5.7E+01	4.7E+03			na	4.7E+03			5.7E+00	4.7E+02			na	4.7E+02			na	4.7E+02
2-Chlorophenol	0			1.2E+02	4.0E+02			na	8.8E+03			1.2E+01	4.0E+01			na	8.8E+02			na	8.8E+02
Chlorpyrifos	0	8.3E-02	4.1E-02			1.7E-01	4.4E-01			2.1E-02	1.0E-02			2.1E-01	1.1E-01			1.7E-01	1.1E-01		
Chromium III	0	4.0E+02	7.8E+01			8.0E+02	8.3E+02			1.6E+02	1.9E+01			1.6E+03	2.1E+02			8.0E+02	2.1E+02		
Chromium VI	0	1.6E+01	1.1E+01			3.2E+01	1.2E+02			4.0E+00	2.8E+00			4.0E+01	2.9E+01			3.2E+01	2.9E+01		
Chrysene [C]	0			4.4E-02	4.9E-01			na	4.9E-01			4.4E-03	4.9E-02			na	4.9E-02			na	4.9E-02
Copper	0.8	3.3E+00	4.2E+00	1.3E+03		5.7E+00	3.8E+01	na		2.0E+00	1.7E+00	1.3E+02		1.3E+01	1.0E+01	na		5.7E+00	1.0E+01	na	
Cyanide	0	2.2E+01	5.2E+00	7.0E+02	2.2E+05	4.4E+01	5.6E+01	na	4.7E+06	5.5E+00	1.3E+00	7.0E+01	2.2E+04	5.5E+01	1.4E+01	na	4.7E+05	4.4E+01	1.4E+01	na	4.7E+05
DDD [C]	0			8.3E-03	8.4E-03			na	8.4E-03			8.3E-04	8.4E-04			na	8.4E-04			na	8.4E-04
DDE [C]	0			5.9E-03	5.9E-03			na	5.9E-03			5.9E-04	5.9E-04			na	5.9E-04			na	5.9E-04
DDT [C]	0	1.0E+00	1.0E-03	5.9E-03	5.9E-03	2.0E+00	1.1E-02	na	5.9E-03	2.5E-01	2.5E-04	5.9E-04	5.9E-04	2.5E+00	2.7E-03	na	5.9E-04	2.0E+00	2.7E-03	na	5.9E-04
Demeton	0		1.0E-01				1.1E+00				2.5E-02				2.7E-01				2.7E-01		

Parameter	Background	Water Quality Standard				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Dibenz(a,h)anthracene [C]	0			4.4E-02	4.9E-01			na	4.9E-01			4.4E-03	4.9E-02			na	4.9E-02			na	4.9E-02
Dibutylphthalate	0			2.7E+03	1.2E+04			na	2.6E+05			2.7E+02	1.2E+03			na	2.6E+04			na	2.6E+04
Dichloromethane [C]	0			4.7E+01	1.6E+04			na	1.6E+04			4.7E+00	1.6E+03			na	1.6E+03			na	1.6E+03
1,2-Dichlorobenzene	0			2.7E+03	1.7E+04			na	3.7E+05			2.7E+02	1.7E+03			na	3.7E+04			na	3.7E+04
1,3-Dichlorobenzene	0			4.0E+02	2.6E+03			na	5.7E+04			4.0E+01	2.6E+02			na	5.7E+03			na	5.7E+03
1,4-Dichlorobenzene	0			4.0E+02	2.6E+03			na	5.7E+04			4.0E+01	2.6E+02			na	5.7E+03			na	5.7E+03
Dichlorobromomethane [C]	0			5.6E+00	4.6E+02			na	4.6E+02			5.6E-01	4.6E+01			na	4.6E+01			na	4.6E+01
1,2-Dichloroethane [C]	0			3.8E+00	9.9E+02			na	9.9E+02			3.8E-01	9.9E+01			na	9.9E+01			na	9.9E+01
1,1-Dichloroethylene	0			3.1E+02	1.7E+04			na	3.7E+05			3.1E+01	1.7E+03			na	3.7E+04			na	3.7E+
2,4-Dichlorophenol	0			9.3E+01	7.9E+02			na	1.7E+04			9.3E+00	7.9E+01			na	1.7E+03			na	1.7E
(2,4-Dichlorophenoxy) acetic acid (2,4-D)	0			7.1E+01				na				7.1E+00				na				na	
Dieldrin [C]	0	2.5E+00	1.9E-03	1.4E-03	1.4E-03	5.0E+00	2.0E-02	na	1.4E-03	6.3E-01	4.8E-04	1.4E-04	1.4E-04	6.3E+00	5.1E-03	na	1.4E-04	5.0E+00	5.1E-03	na	1.4E-04
Diethylphthalate	0			2.3E+04	1.2E+05			na	2.6E+06			2.3E+03	1.2E+04			na	2.6E+05			na	2.6E+05
Di-2-ethylhexylphthalate [C]	0			1.8E+01	5.9E+01			na	5.9E+01			1.8E+00	5.9E+00			na	5.9E+00			na	5.9E+00
2,4-Dimethylphenol	0			5.4E+02	2.3E+03			na	5.1E+04			5.4E+01	2.3E+02			na	5.1E+03			na	5.1E+03
2,4-Dinitrotoluene [C]	0			1.1E+00	9.1E+01			na	9.1E+01			1.1E-01	9.1E+00			na	9.1E+00			na	9.1E+00
Dioxin (ppq)	0			1.2E-06	1.2E-06			na	2.6E-05			1.2E-07	1.2E-07			na	2.6E-06			na	2.6E-06
Endosulfan	0	2.2E-01	5.6E-02	1.1E+02	2.4E+02	4.4E-01	6.0E-01	na	5.3E+03	5.5E-02	1.4E-02	1.1E+01	2.4E+01	5.5E-01	1.5E-01	na	5.3E+02	4.4E-01	1.5E-01	na	5.3E+02
Endrin	0	1.8E-01	2.3E-03	7.6E-01	8.1E-01	3.6E-01	2.5E-02	na	1.8E+01	4.5E-02	5.8E-04	7.6E-02	8.1E-02	4.5E-01	6.1E-03	na	1.8E+00	3.6E-01	6.1E-03	na	1.8E+00
Ethylbenzene	0			3.1E+03	2.9E+04			na	6.4E+05			3.1E+02	2.9E+03			na	6.4E+04			na	6.4E+04
Fluoranthene	0			3.0E+02	3.7E+02			na	8.1E+03			3.0E+01	3.7E+01			na	8.1E+02			na	8.1E+02
Fluorene	0			1.3E+03	1.4E+04			na	3.1E+05			1.3E+02	1.4E+03			na	3.1E+04			na	3.1E+04
Foaming Agents	0			5.0E+02				na				5.0E+01				na				na	
Guthion	0		1.0E-02				1.1E-01				2.5E-03				2.7E-02				2.7E-02		
Heptachlor [C]	0	5.2E-01	3.8E-03	2.1E-03	2.1E-03	1.0E+00	4.1E-02	na	2.1E-03	1.3E-01	9.5E-04	2.1E-04	2.1E-04	1.3E+00	1.0E-02	na	2.1E-04	1.0E+00	1.0E-02	na	2.1E
Hexachlorocyclohexane (Lindane)	0	2.0E+00	8.0E-02	7.0E+00	2.5E+01	4.0E+00	8.6E-01	na	5.5E+02	5.0E-01	2.0E-02	7.0E-01	2.5E+00	5.0E+00	2.1E-01	na	5.5E+01	4.0E+00	2.1E-01	na	5.5E+
Hydrogen Sulfide	0		2.0E+00				2.1E+01				5.0E-01				5.3E+00				5.3E+00		
Indeno(1,2,3-cd)pyrene C	0			4.4E-02	4.9E-01			na	4.9E-01			4.4E-03	4.9E-02			na	4.9E-02			na	4.9E-02
Iron	0			3.0E+02				na				3.0E+01				na				na	
Isophorone	0			6.9E+03	4.9E+05			na	1.1E+07			6.9E+02	4.9E+04			na	1.1E+06			na	1.1E+06
Kepone	0		0.0E+00				0.0E+00				0.0E+00				0.0E+00				0.0E+00		
Lead	0.4	1.2E+01	2.9E+00	1.5E+01		2.4E+01	2.8E+01	na		6.7E+00	1.0E+00	1.9E+00		6.4E+01	7.2E+00	na		2.4E+01	7.2E+00	na	
Malathion	0		1.0E-01				1.1E+00				2.5E-02				2.7E-01				2.7E-01		
Manganese	0			5.0E+01				na				5.0E+00				na				na	
Mercury	0	2.4E+00	1.2E-02	5.2E-02	5.3E-02	4.8E+00	1.3E-01	na	1.2E+00	6.0E-01	3.0E-03	5.2E-03	5.3E-03	6.0E+00	3.2E-02	na	1.2E-01	4.8E+00	3.2E-02	na	1.2E-01
Methoxychlor	0		3.0E-02	4.0E+01			3.2E-01	na			7.5E-03	4.0E+00			8.0E-02	na			8.0E-02	na	
Mirex	0		0.0E+00				0.0E+00				0.0E+00				0.0E+00				0.0E+00		
Monochlorobenzene	0			6.6E+02	2.1E+04			na	4.6E+05			6.8E+01	2.1E+03			na	4.6E+04			na	4.6E+04

Parameter	Background	Water Quality Standard				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Nickel	0.7	4.0E+01	7.4E+00	6.1E+02	4.6E+03	7.9E+01	7.2E+01	na	1.0E+05	1.7E+01	2.4E+00	6.2E+01	4.6E+02	1.6E+02	1.9E+01	na	1.0E+04	7.9E+01	1.9E+01	na	1.0E+04
Nitrate (as N)	0			1.0E+04				na				1.0E+03				na				na	
Nitrobenzene	0			1.7E+01	1.9E+03			na	4.2E+04			1.7E+00	1.9E+02			na	4.2E+03			na	4.2E+03
Parathion	0	6.5E-02	1.3E-02			1.3E-01	1.4E-01			1.6E-02	3.3E-03			1.6E-01	3.5E-02			1.3E-01	3.5E-02		
PCB-1016 [C]	0		1.4E-02	4.4E-04	4.5E-04		1.5E-01	na	4.5E-04		3.5E-03	4.4E-05	4.5E-05		3.7E-02	na	4.5E-05		3.7E-02	na	4.5E-05
PCB-1221 [C]	0		1.4E-02	4.4E-04	4.5E-04		1.5E-01	na	4.5E-04		3.5E-03	4.4E-05	4.5E-05		3.7E-02	na	4.5E-05		3.7E-02	na	4.5E-05
PCB-1232 [C]	0		1.4E-02	4.4E-04	4.5E-04		1.5E-01	na	4.5E-04		3.5E-03	4.4E-05	4.5E-05		3.7E-02	na	4.5E-05		3.7E-02	na	4.5E-05
PCB-1242 [C]	0		1.4E-02	4.4E-04	4.5E-04		1.5E-01	na	4.5E-04		3.5E-03	4.4E-05	4.5E-05		3.7E-02	na	4.5E-05		3.7E-02	na	4.5E-05
PCB-1248 [C]	0		1.4E-02	4.4E-04	4.5E-04		1.5E-01	na	4.5E-04		3.5E-03	4.4E-05	4.5E-05		3.7E-02	na	4.5E-05		3.7E-02	na	4.5E-05
PCB-1254 [C]	0		1.4E-02	4.4E-04	4.5E-04		1.5E-01	na	4.5E-04		3.5E-03	4.4E-05	4.5E-05		3.7E-02	na	4.5E-05		3.7E-02	na	4.5E-05
PCB-1260 [C]	0		1.4E-02	4.4E-04	4.5E-04		1.5E-01	na	4.5E-04		3.5E-03	4.4E-05	4.5E-05		3.7E-02	na	4.5E-05		3.7E-02	na	4.5E-05
Pentachlorophenol [C]	0	4.1E+00	2.6E+00	2.8E+00	8.2E+01	8.1E+00	2.7E+01	na	8.2E+01	1.0E+00	6.4E-01	2.8E-01	8.2E+00	1.0E+01	6.8E+00	na	8.2E+00	8.1E+00	6.8E+00	na	8.2E+00
Phenol	0			2.1E+04	4.6E+06			na	1.0E+08			2.1E+03	4.6E+05			na	1.0E+07			na	1.0E+07
Pyrene	0			9.6E+02	1.1E+04			na	2.4E+05			9.6E+01	1.1E+03			na	2.4E+04			na	2.4E+04
Radionuclides (pCi/l except Beta/Photon)	0																				
Gross Alpha Activity	0			1.5E+01	1.5E+01			na	3.3E+02			1.5E+00	1.5E+00			na	3.3E+01			na	3.3E+01
Beta and Photon Activity	0			4.0E+00	4.0E+00			na	8.8E+01			4.0E-01	4.0E-01			na	8.8E+00			na	8.8E+00
Strontium-90	0			8.0E+00	8.0E+00			na	1.8E+02			8.0E-01	8.0E-01			na	1.8E+01			na	1.8E+01
Tritium	0			2.0E+04	2.0E+04			na	4.4E+05			2.0E+03	2.0E+03			na	4.4E+04			na	4.4E+04
Selenium	0	2.0E+01	5.0E+00	1.7E+02	1.1E+04	4.0E+01	5.3E+01	na	2.4E+05	5.0E+00	1.3E+00	1.7E+01	1.1E+03	5.0E+01	1.3E+01	na	2.4E+04	4.0E+01	1.3E+01	na	2.4E+04
Silver	0	1.9E-01				3.7E-01				1.3E-01				1.3E+00				3.7E-01			
Sulfate	0			2.5E+05				na				2.5E+04				na				na	
Tetrachloroethylene	0			3.2E+02	3.5E+03			na	7.7E+04			3.2E+01	3.5E+02			na	7.7E+03			na	7.7E+03
Toluene	0			6.8E+03	2.0E+05			na	4.4E+06			6.8E+02	2.0E+04			na	4.4E+05			na	4.4E+05
Total dissolved solids	0			5.0E+05				na				5.0E+04				na				na	
Toxaphene [C]	0	7.3E-01	2.0E-04	7.3E-03	7.3E-03	1.5E+00	2.1E-03	na	7.3E-03	1.8E-01	5.0E-05	7.3E-04	7.3E-04	1.8E+00	5.3E-04	na	7.3E-04	1.5E+00	5.3E-04	na	7.3E-04
1,2,4-Trichlorobenzene	0			2.6E+02	9.5E+02			na	2.1E+04			2.6E+01	9.5E+01			na	2.1E+03			na	2.1E+03
Trichloroethylene [C]	0			2.7E+01	8.1E+02			na	8.1E+02			2.7E+00	8.1E+01			na	8.1E+01			na	8.1E+01
2,4,6-Trichlorophenol [C]	0			2.1E+01	6.5E+01			na	6.5E+01			2.1E+00	6.5E+00			na	6.5E+00			na	6.5E+00
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0			5.0E+01				na				5.0E+00				na				na	
Tributyltin	0	4.6E-01	2.6E-02			9.2E-01	2.8E-01			1.2E-01	6.5E-03			1.2E+00	6.9E-02			9.2E-01	6.9E-02		
Vinyl Chloride	0			2.0E+01	5.3E+03			na	1.2E+05			2.0E+00	5.3E+02			na	1.2E+04			na	1.2E+04
Zinc	0.12	2.6E+01	3.8E+01	5.0E+03		5.1E+01	4.1E+02	na		1.1E+01	9.7E+00	5.0E+02		1.1E+02	1.0E+02	na		5.1E+01	1.0E+02	na	

[C] = carcinogenic

Regular WLA = [WQS((%MIX/100)(stream flow) + design flow) - (streamflow)(background conc.)]/design flow

Antideg. Baseline = (0.25(WQS - background conc.) + bacground conc.) for acute and chronic

= (0.1(WQS - background conc.) + background conc.) for human health

Antideg. WLA = [Baseline(stream flow + design flow) - (stream flow)(background conc.)]/design flow

= data entry cells

= protected cells

Metal	Target Value (SSTV)
Antimony	9.5E+03
Arsenic	na
Arsenic III	2.9E+02
Barium	na
Cadmium	4.1E-01
Chromium III	1.2E+02
Chromium VI	1.3E+01
Copper	2.3E+00
Iron	na
Lead	4.3E+00
Manganese	na
Mercury	1.9E-02
Nickel	1.1E+01
Selenium	8.0E+00
Silver	1.5E-01
Zinc	2.0E+01

Note: do not use QL's lower than the minimum QL's provided in agency guidance

All possible acute and chronic criteria (in mg/l) have been calculated:

Program enters the applicable set of criteria in K149 and K155.

Acute Criteria: 16.6028

	unionized	total	NH3-N
When pH > 8.0:	0.3935259	42.974689	35.3252
When pH < 8.0:	0.1849563	20.198009	16.6028

Chronic Criteria: 2.02622

When pH > 8.0:	0.0896925	9.7948009	8.05133
When 7.7 < pH < 8.0:	0.0421553	4.6035349	3.78411
When pH < 7.7:	0.0225723	2.4649855	2.02622

	Regular WLA	Antideg. WLA
Eff. 7Q10	19.38	19.38
Eff. 1Q10	1.9899	18.09
Acute hardness	16.6079	29.9849
Chronic Hardness	30.1849	30.1849

ATTACHMENT 7

SPECIAL CONDITIONS RATIONALE

VPDES PERMIT PROGRAM
LIST OF SPECIAL CONDITIONS RATIONALE

Name of Condition:

B. WET Schedule and Limitation

Rationale: Required by the State Water Control Law, Section 62.1-44.15 (3a) and the State's Water Quality Standards (9 VAC 25-260-20). In addition, the VPDES Permit Regulation, 9 VAC 25-31-220 D. and 40 CFR 122.44 (d) require limits necessary to meet water quality standards. In accordance with the VPDES Permit Regulation, 9 VAC 25-31-250, and 40 CFR 122.47, the permit may, when appropriate, specify a schedule of compliance leading to compliance with the Clean Water Act, laws and regulations. See Attachment 9 of this fact sheet for additional justification.

C. OTHER REQUIREMENTS OR SPECIAL CONDITIONS

1. Water Quality Standards Reopener

Rationale: The VPDES Permit Regulation, 9 VAC 25-31-220 D requires effluent limitations to be established which will contribute to the attainment or maintenance of water quality criteria.

2. Nutrient Enriched Waters Reopener

Rationale: The Policy for Nutrient Enriched Waters, 9 VAC 25-40 -10 allows reopening of permits for discharges into waters designated as nutrient enriched if total phosphorus and total nitrogen in a discharge potentially exceed specified concentrations. The policy also anticipates that future total phosphorus and total nitrogen limits may be needed.

3. Licensed Operator Requirement

Rationale: The Permit Regulation, 9 VAC 25-31-200 D and Code of Virginia 54.1-2300 et. seq., Rules and Regulations for Waterworks and Wastewater Works Operators (18 VAC 160-20-10 et seq.) requires licensure of operators.

4. Operations & Maintenance (O & M) Manual

Rationale: The State Water Control Law, Section 62.1-44.21 allows requests for any information necessary to determine the effect of the discharge on State waters. Section 401 of the Clean Water Act requires the permittee to provide opportunity for the state to review the proposed operations of the facility. In addition, 40 CFR 122.41 (e) requires the permittee, at all times, to properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) in order to achieve compliance with the permit (includes laboratory controls and QA/QC). For this permit modification, the EPA requested that solvent handling be specifically addressed in the O&M Manual due to past instances at the facility where solvent handling resulted in a significant spill to the receiving stream. The Condition was also updated to include operation of the new RO system at the facility.

5. Notification Levels

Rationale: The VPDES Permit Regulation, 9 VAC 25-31-200 and 40 CFR 122.42 (a) require notification of the discharge of certain parameters at or above specific concentrations for existing manufacturing, commercial mining and silvicultural discharges.

6. Quantification Levels Under Part I.A.

Rationale: States are authorized to establish monitoring methods and procedures to compile and analyze data on water quality, as per 40 CFR part 130, Water Quality Planning and Management, subpart 130.4. Section b. of the special condition defines QL and is included per BPJ to clarify the difference between QL and MDL.

7. Compliance Reporting Under Part I.A.

Rationale: Defines reporting requirements for toxic parameters and some conventional parameters with quantification levels to ensure consistent, accurate reporting on submitted reports.

8. Materials Handling and Storage

Rationale: The VPDES Permit Regulation, 9 VAC 25-31-50 A., prohibits the discharge of any wastes into State waters unless authorized by permit. The State Water Control Law, Sec. 62.1-44.18:2, authorizes the Board to prohibit any waste discharge which would threaten public health or safety, interfere with or be incompatible with treatment works or water use. Section 301 of the Clean Water Act prohibits the discharge of any pollutant unless it complies with specific sections of the Act.

9. Site Specific Metals Translator Study

Rationale: The metals translator study approved on November 6, 2001 provides the basis for an alternate limit for copper in the permit. The special condition will detail the calculations used for the limit.

10. Use of Past Sludge Application Site

Rationale: Per BPJ and in accordance with the Corrective Action process, the permittee will be prohibited from using the past sludge application site without modification of the VPDES permit.

11. Cooling Water and Boiler Additives

Rationale: Chemical additives may be toxic or otherwise violate the receiving stream water quality standards. Upon notification, the regional office can determine if this new additive will warrant a modification to the permit.

12. Minimum Freeboard

Rationale: Minimize the discharge of untreated wastewater to the groundwater or surface waters.

13. Best Management Practices (BMPs)

Rationale: The VPDES Permit Regulation, 9 VAC 25-31-220 K., and 40 CFR 122.44 (k) allow BMPs for the control of toxic pollutants listed in Section 307 (a)(1), and hazardous substances listed in Section 311 of the Clean Water Act where numeric limits are infeasible or BMPs are needed to accomplish the purpose/intent of the law. BMP's shall be used to minimize spills and releases of chemicals and raw, intermediate, final and waste products from

the site to the receiving stream. In addition, the General Permit Regulation for Storm Water Associated with Industrial Activity, specifically Sector C, Chemical and Allied Products Manufacturing, 9 VAC 25-151-110, includes a section on non-structural BMPs that has been incorporated into the permit.

14. Prohibition of specific and non-storm water discharges

Rationale: The General Permit Regulation for Storm Water Associated with Industrial Activity, specifically Sector C, Chemical and Allied Products Manufacturing, 9 VAC 25-151-110, includes a prohibition on specific non-storm water discharges non that has been incorporated into the permit. Spills and inadvertent discharges of the materials used, produced and/or disposed of as waste materials at organic chemical manufacturing facilities have the potential to exhibit toxic effects in the receiving stream; therefore, a specific prohibition on these types of discharges, as described in 9 VAC 25-151-110 is included based on BPJ to protect water quality.

15. Reverse Osmosis (RO) System Additives

Rationale: Chemical additives may be toxic or otherwise violate the receiving stream water quality standards. Upon notification, the regional office can determine if this new additive will warrant a modification to the permit.

D. STORM WATER MANAGEMENT CONDITIONS

1. Sampling Methodology for Specific Outfalls 902, 003, 004, 005, 006

Rationale: Defines methodology for collecting representative effluent samples in conformance with applicable regulations.

2. Storm Water Management Evaluation

Rationale: The Clean Water Act 402(p) (2) (B) requires permits for storm water discharges associated with industrial activity. VPDES permits for storm water discharges must establish BAT/BCT requirements in accordance with 402(p)(3) of the Act. The Storm Water Pollution Prevention Plan is the vehicle proposed by EPA in the final NPDES General Permits for Storm Water Discharges Associated with Industrial Activity (Federal Register Sept 9, 1992) to meet the requirements of the Act. Additionally, the VPDES Permit Regulation, 9 VAC 25-31-220 K., and 40 CFR 122.44 (k) allow BMPs for the control of toxic pollutants listed in Section 307 (a)(1), and hazardous substances listed in Section 311 of the Clean Water Act where numeric limits are infeasible or BMPs are needed to accomplish the purpose/intent of the law.

Finally, the EPA produced a document dated August 1, 1996, entitled "Interim Permitting Approach for Water Quality- Effluent Limitations in Storm Water Permits". This document indicated that an interim approach to limiting storm water could be through the use of best management practices rather than numerical limits. EPA pointed out that Section 502 of the Clean Water Act (CWA) defined "effluent limitation" to mean "any restriction on quantities, rates, and concentrations of constituents discharged from point sources. The CWA does not say that effluent limitations need be numeric." The use of BMPs falls in line with the Clean Water Act which notes the need to control these discharges to the maximum extent necessary to mitigate impacts on water quality.

3. General Storm Water Conditions

a. Sample Type

Rationale: This stipulates the proper sampling methodology for qualifying rain events from regulated storm water outfalls. Use of this condition is a BPJ determination based on the EPA storm water multi-sector general permit for industrial activities and is consistent with that permit.

b. Recording of Results

Rationale: This sets forth the information which must be recorded and reported for each storm event sampling (ie. date and duration event, rainfall measurement, and duration between qualifying events). It also requires the maintenance of daily rainfall logs which are to be reported. This condition is carried over from the previous storm water pollution prevention plan requirements contained in the EPA storm water baseline industrial general permit.

c. Sampling Waiver

Rationale: This condition allows the permittee to collect substitute samples of qualifying storm events in the event of adverse climatic conditions. Use of this condition is a BPJ determination based on the EPA storm water multi-sector general permit for industrial activities and is consistent with that permit.

d. Representative Discharge

Rationale: This condition allows the permittee to submit the results of sampling from one outfall as representative of other similar outfalls, provided the permittee can demonstrate that the outfalls are substantially identical. Use of this condition is a BPJ determination based on the EPA storm water multi-sector general permit for industrial activities and is consistent with that permit.

e. Quarterly Visual Examination of Storm Water Quality

Rationale: This condition requires that visual examinations of storm water outfalls take place at a specified frequency and sets forth what information needs to be checked and documented. These examinations assist with the evaluation of the pollution prevention plan by providing a simple, low cost means of assessing the quality of storm water discharge with immediate feedback. Use of this condition is a BPJ determination based on the EPA storm water multi-sector general permit for industrial activities and is consistent with that permit.

f. Releases of Hazardous Substances or Oil in Excess of Reportable Quantities

Rationale: This condition requires that the discharge of hazardous substances or oil from a facility be eliminated or minimized in accordance with the facility's storm water pollution prevention plan. If there is a discharge of a material in excess of a reportable quantity, it establishes the reporting requirements in accordance with state laws and federal regulations. In addition, the pollution prevention plan for the facility must be reviewed and revised as necessary to prevent a reoccurrence of the spill. Use of this condition is a BPJ determination based on the EPA storm water multi-

sector general permit for industrial activities and is consistent with that permit.

g. Allowable Non-Storm Water Discharges

Rationale: The listed allowable non-storm water discharges are the same as those allowed by the EPA in their multi-sector general permit, and are the same non-storm water discharges allowed under the Virginia General VPDES Permit for Discharges of Storm Water Associated with Industrial Activity, 9 VAC 25-151-10 et seq. Allowing the same non-storm water discharges in VPDES individual permits provides consistency with other storm water permits for industrial facilities. The non-storm water discharges must meet the conditions in the permit.

4. Storm Water Pollution Prevention Plan

Rationale: The Clean Water Act 402(p) (2) (B) requires permits for storm water discharges associated with industrial activity. VPDES permits for storm water discharges must establish BAT/BCT requirements in accordance with 402(p)(3) of the Act. The Storm Water Pollution Prevention Plan is the vehicle proposed by EPA in the final NPDES General Permits for Storm Water Discharges Associated with Industrial Activity (Federal Register Sept 9, 1992) to meet the requirements of the Act. Additionally, the VPDES Permit Regulation, 9 VAC 25-31-220 K., and 40 CFR 122.44 (k) allow BMPs for the control of toxic pollutants listed in Section 307 (a)(1), and hazardous substances listed in Section 311 of the Clean Water Act where numeric limits are infeasible or BMPs are needed to accomplish the purpose/intent of the law.

5. Facility-specific Storm Water Management Conditions

Rationale: These conditions set forth additional site-specific storm water pollution prevention plan requirements. Use of these conditions is a BPJ determination based on the EPA storm water multi-sector general permit for industrial activities and DEQ's general permit for storm water associated with industrial activities and is consistent with those permits.

ATTACHMENT 8

TOXICS MONITORING/TOXICS REDUCTION/ WET LIMIT RATIONALE

MEMORANDUM

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

TIDEWATER REGIONAL OFFICE

5636 Southern Boulevard Virginia Beach, VA 23462

SUBJECT: TMP language for Hercules, Inc. (VA0003433) Modification

TO: Deanna Austin

FROM: Mark Sauer

DATE: October 1, 2009

COPIES: TRO File (PPP #257)

Hercules Inc. is located in Courtland Virginia and operates a facility with numerous chemical processes, including the manufacture of paper sizing agents and organic peroxides. The process of refining crude tall oil into rosin acid and fatty acid products and the upgrade of fatty acids were discontinued in 2008.

Hercules has requested a modification to their permit due to the removal of the tall oil process, affecting the fatty acid process. The removal of this process will decrease the flow at outfall 201 by approximately 60%. The modification will also include the addition of three stormwater outfalls as a result of facility and EPA inspections. These storm water outfalls will be labeled 004, 005, and 006. Outfall 006 was previously permitted as outfall 001 as a storm water outfall and will be added back due to the EPA inspection. The added stormwater outfalls will discharge to Wills Gut to the Nottoway River. The permit will include chemical and visual monitoring for the new storm water outfalls, but will not include toxicity screening at this time. The analytical data will be evaluated at the next permit reissuance to determine if chemical or toxicity screening needs to be added to the permit.

Since the permit is currently being modified, it is a good time to address method changes for WET testing. In early 2008 Hercules began to experience problems with toxicity tests exhibiting flat response curves. Per the EPA WET Methods Manual, the facility began to perform side-by-side tests using UV treatment in the laboratory to determine if the flat response curves were due to possible pathogen effects. The first two sets of side-by-sides were collected on 3/3/08 and 3/31/08. Both side-by-sides showed evidence that the flat response curve could be due to a pathogen effect. Because of this, a meeting was held with Hercules on 4/30/08 to discuss the toxicity results. During this meeting it was decided that Hercules would run two more side-by-side samples using UV treatment for species, P.p. and C.d. The UV treatment would be for 1.5 hours at 8 watts. Hercules has performed three more side-by-side tests since the 4/30/08 meeting. The dates were 6/9/08, 7/7/08, and 8/4/08. These three tests showed marked improvement for P.p. when UV treatment is used, again supporting the possible pathogen effect cause for the flat response curves. Because of the possible pathogen effect, Hercules will be allowed to use the alternative method of UV treatment for the WET tests. The UV treatment will be required to be for 1.5 hours at 8 watts in the laboratory if Hercules chooses to use the alternate method. The permit language shall be written with the required specifications for UV treatment.

Hercules also requested the DEQ review and evaluate their request to add calcium chloride in the laboratory to adjust hardness rather than adding CaCl on a continuous basis in the discharge stream. In October 2009 the DEQ informed Hercules staff that this change could not be implemented for the following reasons: 1) A review of past TRE information and toxics reports prepared and submitted by Hercules indicate that Hercules determined during the TRE phase that low hardness water was largely the cause toxicity requiring the TRE and the WET limits included in the permit; 2) EPA guidance documents on conducting WET tests only allow for the adjustment of dilution water hardness to meet organism culture water, the documents do not provide for the adjustment of effluent; 3) Hercules must continue to treat the discharge to meet the WET limits rather than adjust the WET effluent sample so that the effluent samples used in the WET tests are representative of the effluent being

discharged. Due to these reasons, the adjustment of hardness must remain part of the treatment and discharge process and not be done on the effluent sample in the laboratory. The permittee may use process control sampling to run WET tests with varying hardness concentrations to determine if the test organisms will not exhibit toxic effects at lower hardness concentrations than the concentration to which they are currently adjusting the discharge. These process control samples shall be collected so that the discharge to outfall 002 maintains proper hardness and meets all permit limitations at all times, as is currently required in the permit.

One other item included in this modification is the addition of a reverse osmosis (RO) system to treat water for industrial use for the permittee's customer. DEQ guidance recommends a toxics monitoring program for RO systems when the reject water is discharged to State waters. However, there are WET limitations in place for acute and chronic toxicity on outfall 002 at this facility, so additional toxics monitoring for the RO system is not necessary.

The following WET language is recommended for the reissuance of the Hercules, Inc. permit (VA0003433).

B. WHOLE EFFLUENT TOXICITY (WET) LIMITATION MONITORING REQUIREMENTS FOR OUTFALL 002

1. The Whole Effluent Toxicity limitations in Part I.A. for outfall 002 are final limits. These limits are:

   Acute: 1.0 TU_a (LC_{50} = 100% effluent)
   Chronic: 6.25 TU_c (NOEC ≥ 16% effluent)

2. The permittee shall conduct quarterly acute and chronic toxicity tests using 24 hour, flow-proportioned composite samples of final effluent from outfall 002 in accordance with the sampling methodology in Part I.A. of this permit. The composite samples for toxicity testing shall be taken at the same time as the monitoring for the outfall in Part 1.A. of this permit. The acute and chronic tests shall be conducted for outfall 002 using:

   48 Hour Static Acute Test using **Ceriodaphnia dubia**

   Chronic 3-Brood Static Renewal Survival and Reproduction Test using **Ceriodaphnia dubia**

   and

   Chronic 7-day Static Renewal Survival and Growth Test with **Pimephales promelas**

3. The acute tests shall be performed with a minimum of 5 dilutions, derived geometrically, for the calculation of a valid LC_{50}. Express the results as TU_a (Acute Toxic Units) by dividing 100/ LC_{50} for reporting.

   The chronic tests shall be conducted in such a manner and at sufficient dilutions (minimum of five dilutions, derived geometrically) to determine the "No Observed Effect Concentration" (NOEC) for survival and growth. Results which

cannot be quantified (i.e., a "less than" NOEC value) are not acceptable, and a retest will have to be performed. Express the test NOEC as TU_c (Chronic Toxic Units), by dividing 100/NOEC for reporting. Report the LC50 at 48 hours and the IC25 with the NOEC's in the test report.

Test procedures and reporting shall be in accordance with the WET testing methods cited in 40 CFR 136.3.

4. Prior to use in the chronic toxicity test, effluent samples may be UV-radiated by 8W for 1.5 hours per 3.4 liter sample. Any changes to this UV treatment shall be submitted to DEQ for approval prior to implementation.

5. The permit may be modified or revoked and reissued to include pollutant specific limits in lieu of a WET limit should it be demonstrated that toxicity is due to specific parameters. The pollutant specific limits must control the toxicity of the effluent.

6. Two complete copies of the of the toxicity test reports shall be submitted with the DMR. A complete report must contain a copy of all laboratory benchsheets, certificates of analysis, and all chains of custody.

ATTACHMENT 9

MATERIAL STORED

Hercules Incorporated
Franklin, VA
VPDES - Permit Renewal

Hazardous Chemicals Stored on Site in Excess of 10,000 pounds

Herc
Eastman
GEO

Trade Name	Chemical Name as it appears on the MSDS	CAS Number	SARA 311/312 Reportable	SARA 313 Reportable
Acetone	Acetone	67-64-1	X	
Acid Chloride	Stearyl Chloride	68955-37-3	X	
Ammonia Anhydrous	Ammonia Anhydrous	7664-41-7	X	
Aqueous Ammonia Hydroxide	Aqueous Ammonia Hydroxide	1336-21-6	X	
Calcium Chloride	Calcium Chloride	010043-52-4	X	
Calcium Hydroxide	Calcium Hydroxide	001305-52-0	X	
Conjugated Linoleic Acid	Conjugated Linoleic Acid	121250-47-3	X	
Crude Tall Oil	Tall Oil	8002-26-4	X	
D4466	Organic Peroxide	NA	X	
D-16	t-Butly Cumyl Peroxide	3457-61-2	X	
D-6a	Liquid Organic Peroxide	3457-61-2	X	
Dicup	Dicumyl Peroxide	80-43-3	X	
Diesel Fuel No 2	Fuel Oil - No. 2	68476-34-6	X	
Diisopropylbenzene	Diisopropylbenzene	25321-09-9	X	
Dimethylbenzyl Alcohol	Dimethylbenzyl Alcohol	617-94-7	X	
Fuel Oil, No. 6	Fuel Oil, No. 6	68476-33-5	X	
Heptane	Solvent Naptha	64742-89-8	X	
Hydrochloric Acid	Hydrochloric Acid	7647-01-0	X	X
Linoleic Acid	Linoleic Acid	60-33-3	X	
Nitrogen	Nitrogen	7727-37-9	X	
Oleic Acid	Oleic Acid	112-80-1	X	
Phophorous Acid	Phophorous Acid	13598-36-2	X	
Phosphorous Trichloride	Phosphorous Trichloride	7719-12-2	X	
Propane	Propane	74-98-6	X	
Propylene Dichloride	Propylene Dichloride	78-87-5	X	X
Saturated Fatty Acid	Saturates	65977-03-7	X	
Sodium Carbonate	Sodium Carbonate	497-19-8	X	
Sodium Hydroxide	Sodium Hydroxide	1310-73-2	X	
Sulfuric Acid	Sulfuric Acid	7664-93-9	X	
Tall Oil Fatty Acid	Tall Oil Fatty Acid, Distilled	61790-12-3	X	
Tall Oil Fatty Acid, Miscellaneous	Tall Oil Fatty Acid	8002-26-4	X	
Tall Oil Lights Ends	Tall Oil Distillate Fraction	65997-03-7	X	
Tall Oil Pitch	Tall Oil Pitch	8016-81-7	X	
t-Butyl Hydroperoxide	t-Butyl Hydroperoxide	75-91-2	X	
Toluene Sulfonic Acid	Toluene Sulfonic Acid	104-15-4	X	
Triethylamine	Triethylamine	121-44-8	X	X
Vulcup Organic Peroxide	Di-(2-tert-butyl-peroxy-isopropyl) benzene	25155-25-3	X	
Xcelthern X	Diphenyl Oxide/Biphenyl	101-84-8	X	

Monocarboxilic Acid	Prifac 5926	67701-05-7	X	
Monomer Acid	Prifac 7922	NA	X	
Precis 800	Precis 800	NA	X	
Precis 900 Alkyl Ketene Dimer	Precis 900 Alkyl Ketene Dimer	NA	X	
Starch	Starch	056780-58-6	X	
Stearic Acid	Emersol 135U, Pris 4904, Pris 4981, MMFA 1802, Acme Hardesty	57-11-4	X	
Rosin	Pamite 70, 79-1	8050-09-7	X	
Clay, Treated	Burgess Clay	NA	X	
Calcium Carbonate	Calcium Carbonate	471-34-1	X	
GEO 313 Organic Peroxide	GEO 313 Organic Peroxide	NA	X	
GEO Vulcup 70%	GEO Vulcup 70%	NA	X	
Paraloid BTA 730 Impact Modifier	Paraloid BTA 730 Impact Modifier	25053-09-2	X	
Paraloid KM 365 Impact Modifier	Paraloid KM 365 Impact Modifier	2582-37-3	X	
Vulcup 20/20XP Organic Peroxide	Vulcup 20/20XP Organic Peroxide	NA	X	
Vulcup 40C Organic Peroxide	Vulcup 40C Organic Peroxide	NA	X	
Vulcup 40KE Organic Peroxide	Vulcup 40KE Organic Peroxide	NA	X	

ATTACHMENT 10

RECEIVING WATERS INFO./ TIER DETERMINATION/STORET DATA/ STREAM MODELING/303(d) LISTED SEGMENTS

M E M O R A N D U M

Department of Environmental Quality
Tidewater Regional Office

5636 Southern Boulevard — Virginia Beach, VA 23462

SUBJECT: VPDES Application Requests

From ~~TO~~: Stephen Cioccia, TRO

To ~~FROM~~: Mark Sauer, TRO

DATE: Sept. 17 2007

COPIES: TRO File - facility # 257, PPP

An application has been received for the following facility:

Hercules Incorporated - Franklin

Topo Map Name: Courtland / Franklin VPDES #: VA0003433

Receiving Stream: (Nottoway River 002) & (Mills Cut to Nottoway River 003)

Attached is a Topographic Map showing facility boundaries and outfall location(s).

Attached is a STORET Request Form if STORET data is requested.

We request the following information from you:

1. X Tier Determination. Tier: 2 (default evaluation - No impairments present) **Please include a basis for the tier determination.** Attachment 1
2. Not requested STORET Data and STORET Station Location(s).
3. X Is this facility mentioned in a Management Plan?

   ✓ No _____ Yes _____ No, but will be included when the Plan is updated.

4. X Are limits contained in a Management Plan?

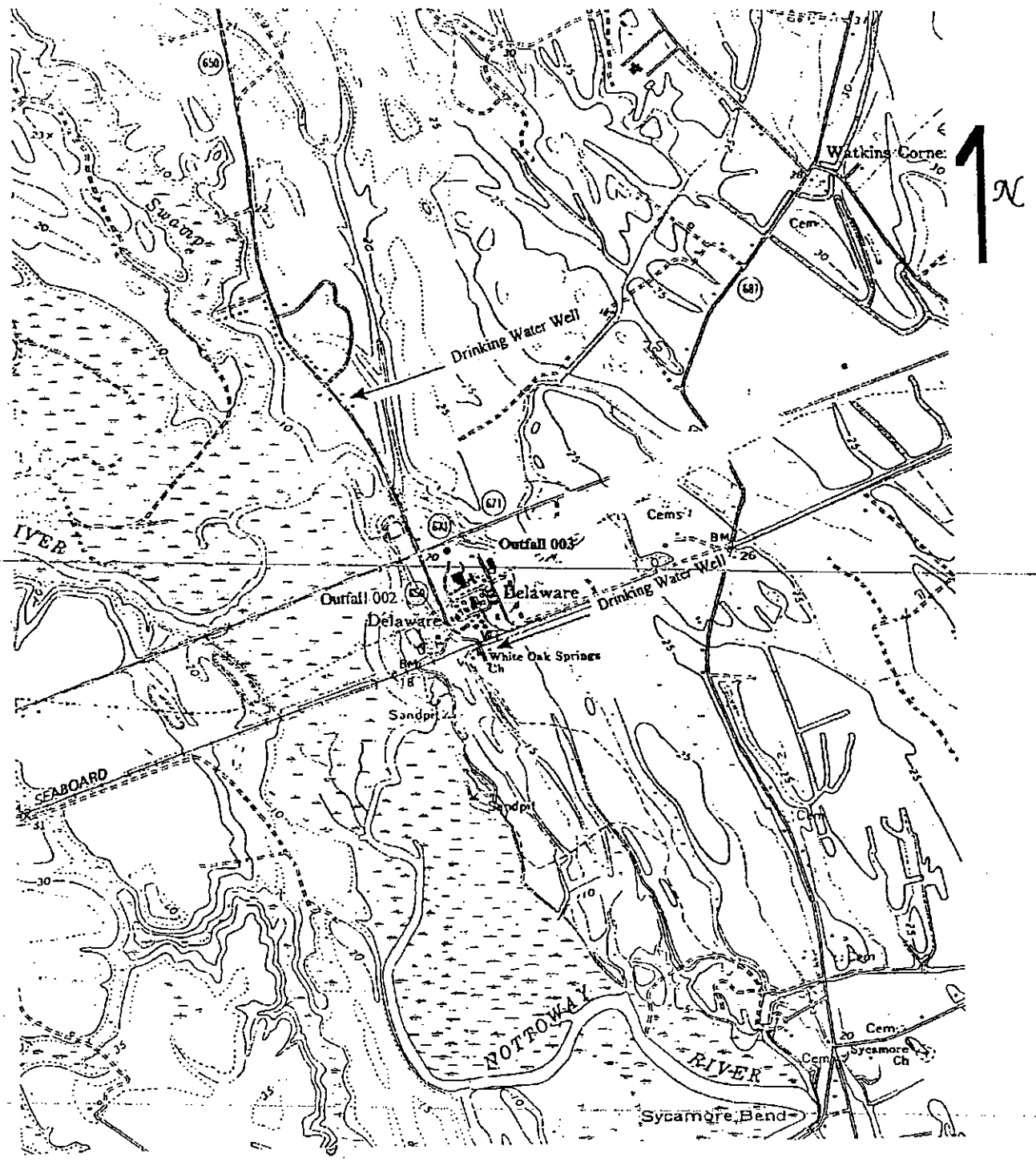
   ✓ No _____ Yes **(If Yes, Please include the basis for the limits.)**

5. X Does this discharge go to a 303(d) stream segment? No

Return Due Date: Not indicated Date Returned: 9/27/07

STORET Station: N/A

STORET Station: _____



Source: USGS Franklin, Virginia 7.5 Minute Topographic Quadrangle Map, REV 1986.
USGS Courtland, Virginia 7.5 Minute Topographic Quadrangle Map, REV 1986.
Scale : 1 : 24,000

that the wasteload allocations and permit requirements for both type waters are the same and they are both grouped under tier 1 for implementation.

Tier 1 waters are defined as those waters wherein one or more standards are not being attained or wherein the existing quality, under critical conditions, is equal to but does not exceed one or more applicable criteria. Information that may be used to establish this tier includes:

- Data collected from the segment of stream being considered that demonstrate that one or more standards are violated or are just barely being met (note exceptions above for fecal coliform and temperature). This demonstration must be outside any mixing zones.

- Data collected for an existing effluent that indicates the need for a more stringent limit than currently exists indicates that the standard is not currently being attained by the effluent under consideration. Thus the water would be tier 1.

- Default assumptions for ammonia that indicate the need for a more stringent limit than currently exists indicates that the ammonia standard is not currently being attained by the effluent under consideration; thus, the water is tier 1.

- An existing water quality based permit limit that was obtained through mathematical modeling may indicate that the effluent under consideration allows the standard to be just barely met in the receiving waters for the parameter modeled, *e.g.* a predicted D.O. of 5.0.

  Note: this does not apply to fecal coliform or to effluent limits adopted as special standards (*e.g.* Potomac Embayment Standards).

- Biological data that demonstrate in stream toxicity.

- Judgement based on the presence of definitely identified sources of pollutants or demonstrated use impairment. Such judgement must be justified and documented. An example might be a water supply reservoir where it is known that algicides are routinely applied.

Tier 2 waters are defined as those waters wherein the existing quality is better than the standards for all parameters that the Board has adopted criteria for (except fecal coliform and temperature for class V waters, see notes above).

If data or information is not available to make a determination, the stream is assumed to be tier 2. Public water supplies and trout streams are assumed to be tier 2 unless information is available to indicate otherwise.

Tier 3 waters are those waters so designated by the Board. These waters are listed in 9 VAC 25-260-30.3.c. If waters are not listed in 9 VAC 25-260-30.3.c, then they are not tier 3.

Once the appropriate tier is assigned, the finding should be documented for future reference. The method for doing this is not recommended since it will vary from region to region. The only guidance is that they should be readily available to future permit writers.

Att. 1 of 1-1

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF ENVIRONMENTAL QUALITY
Division of Water Permit Coordination
629 E. Main Street Richmond, VA 23240

MEMORANDUM

SUBJECT: Guidance Memo No. 00-2011; Guidance on Preparing VPDES Permit Limits

TO: Regional Directors

FROM: Larry G. Lawson

DATE: August 24, 2000

COPIES: David Paylor, Martin Ferguson, Alan Pollock Jean Gregory, Regional Office Permit Managers, Regional Office Water Permit Managers, Regional Office Compliance and Enforcement Managers, OWPP staff

The purpose of this guidance is to replace/update Guidance Memo No. 93 - 015 "Guidance on Preparing VPDES Permits Based on the Water Quality Standards for Toxics"

This guidance was last updated in 1993. Modifications to the water quality standards (WQS) make it necessary to update the guidance. This guidance replaces all previous guidance on the subjects covered herein. Specifically it updates or replaces the following guidance:

91-002	Use of WQS in the VPDES Permit Program
91-011	Selection of Sample Types for VPDES Monitoring
91-016	Use of Existing WQSA Criteria for Silver and Phenol
92-012	Guidance on Use of WQS for Toxics in VPDES Permits
92-012a	Modification of 92-012
930-15	Guidance on Preparing VPDES Permits Based on the Water Quality Standards for Toxics
93-021	Antidegradation Implementation Guidance
94-008	Metals Monitoring, Monitoring Special Condition TOMP Revisions, & Di-2-Ethylhexyl Phthalate
95-012	pH Limits in the VPDES Permits for Cooling Water Outfalls

Note to Users: This document is provided as guidance and, as such, sets forth standard operating procedures for the agency. However, It does not mandate any particular method nor does it prohibit any particular method for the analysis of data, establishment of a wasteload allocation, or establishment of a permit limit. If alternative proposals are made, such proposals should be reviewed and accepted or denied based on their technical adequacy and compliance with appropriate laws and regulations.

Dale Phillips is the contact person if you or your permit managers have any questions.

Voice: 804-698-4077
Fax: 804-698-4032
E-mail: mdphillips@deq.state.va.us

Attachment 1-2

ATTACHMENT 11

TABLE III(a) AND TABLE III(b) - CHANGE SHEETS

TABLE III(a)

VPDES PERMIT PROGRAM
Permit Processing Change Sheet

1. Effluent Limits and Monitoring Schedule: (List any changes FROM PREVIOUS PERMIT and give a brief rationale for the changes).

OUTFALL NUMBER	PARAMETER CHANGED	MONITORING LIMITS CHANGED FROM / TO	EFFLUENT LIMITS CHANGED FROM / TO	RATIONALE	DATE & INITIAL
002	Dissolved Oxygen	Not included / 1/Month	Not included / 4.0 minimum	Addition of RO system, limit based on WQS and guidance	10/23/04
201	BOD average BOD Max		428 mg/l & 493.76 lb/d / 157 mg/l & 176.65 lb/d 825 mg/l & 929.04 lb/d / 296 mg/l & 333.37 lb/d	Change in calculation of fed eff guideline limits based on change in operation and classification	10/23/04
201	TSS average TSS max		172 mg/l & 193.95 lb/d / 69 mg/l & 78.12 lb/d 500 mg/l & 562.86 lb/d / 201 mg/l & 226.83 lb/d	Change in calculation of fed eff guideline limits based on change in operation and classification	10/23/04
202	All Parameters	Not Included / 1/Month	Not included / Limited	New Outfall	10/23/04
004, 005, 006	All Parameters	Not Included / 1/Year	Not included / Monitored	Existing Storm water outfalls newly included in the permit based on inspections at the facility.	10/23/04

OTHER CHANGES FROM:	CHANGED TO:	DATE & INITIAL
Added outfalls 202, 003, 004, 005, 006 as new outfalls		10/23/04
WET Special Condition	Added wording to address UV treatment of WET samples to minimize effects of biological pathogens	10/23/04
Operations and Maintenance Manual	Added wording so that the Manual specifically addresses solvent handling per EPA and addresses the new RO system. Added due date for updated O&M Manual	10/23/04
Added new special condition - Use of chemical additives in the RO system and notification to DEQ.		10/23/04
Added outfalls 004, 005, 006 to Storm Water Conditions		10/23/04

ATTACHMENT 12

NPDES INDUSTRIAL PERMIT RATING WORKSHEET
AND
EPA PERMIT CHECKLIST

NPDES Permit Rating Work Sheet

___ Regular Addition
___ Discretionary Addition
__✓ Score change, but no status change
___ Deletion

NPDES NO: VA0003433

Facility Name: HERCULES INC

City: COURTLAND VA

Receiving Water: NOTTOWAY RIVER

Reach Number:

Is this facility a steam electric power plant (SIC=4911) with one or more of the following characteristics?

1. Power output 500 MW or greater (not using a cooling pond/lake)
2. A nuclear power plant
3. Cooling water discharge greater than 25% of the receiving stream's 7Q10 flow rate

___ YES: score is 600 (stop here) ✓ NO (continue)

Is this permit for a municipal separate storm sewer serving a population greater than 100,000?

___ YES; score is 700 (stop here)
✓ NO (continue)

FACTOR 1: Toxic Pollutant Potential

PCS SIC Code: 2861 Primary SIC Code: 2861

Other SIC Codes: 2869 2899

Industrial Subcategory Code: ___ (Code 000 if no subcategory)

Determine the Toxicity potential from Appendix A. Be sure to use the TOTAL toxicity potential column and check one

Toxicity Group	Code	Points	Toxicity Group	Code	Points	Toxicity Group	Code	Points
___ No process waste streams	0	0	___ 3.	3	15	___ 7.	7	35
___ 1.	1	5	___ 4.	4	20	___ 8.	8	40
___ 2.	2	10	___ 5.	5	25	___ 9.	9	45
			✓ 6.	6	30	___ 10.	10	50

Code Number Checked: 06

Total Points Factor 1: 30

30

FACTOR 2: Flow/Stream Flow Volume *(Complete Either Section A or Section B; check only one)*

Section A--Wastewater Flow Only Considered

Wastewater Type (See Instructions)			Code	Points
Type I:	Flow < 5 MGD	___	11	0
	Flow 5 to 10 MGD	___	12	10
	Flow > 10 to 50 MGD	___	13	20
	Flow > 50 MGD	___	14	30
Type II:	Flow < 1 MGD	___	21	10
	Flow 1 to 5 MGD	___	22	20
	Flow > 5 to 10 MGD	___	23	30
	Flow > 10 MGD	___	24	50
Type III:	Flow < 1 MGD	___	31	0
	Flow 1 to 5 MGD	___	32	10
	Flow > 5 to 10 MGD	___	33	20
	Flow > 10 MGD	___	34	30

Section B--Wastewater and Stream Flow Considered

Wastewater Type (See Instructions)	Percent of Instream Wastewater Concentration at Receiving Stream Low Flow		Code	Points
Type I/III:	< 10%	___	41	0
	> 10% to < 50%	___	42	10
	> 50%	___	43	20
Type II:	<10%	___	51	0
	> 10% to < 50%	✓	52	20
	> 50%	___	53	30

Code Checked from Section A or B: 52

Total Points Factor 2: 20

20

NPDES No.: UA0003433

FACTOR 3: Conventional Pollutants

(only when limited by the permit)

A. Oxygen Demanding Pollutant: (check one) ✓ BOD ___ COD ___ Other: _____

Permit Limits: (check one)		Code	Points
___	< 100 lbs/day	1	0
✓	100 to 1000 lbs/day	2	5
___	>1000 to 3000 lbs/day	3	15
___	>3000 lbs/day	4	20

Code Checked: 2
Points Scored: 05

B. Total Suspended Solids (TSS)

Permit Limits: (check one)		Code	Points
___	< 100 lbs/day	1	0
✓	100 to 1000 lbs/day	2	5
___	>1000 to 5000 lbs/day	3	15
___	>5000 lbs/day	4	20

Code Checked: 2
Points Scored: 05

C. Nitrogen Pollutant: (check one) ___ Ammonia ___ Other: _____

Permit Limits: (check one)		Code	Points
___	< 300 lbs/day	1	0
___	300 to 1000 lbs/day	2	5
___	>1000 to 3000 lbs/day	3	15
___	>3000 lbs/day	4	20

NA

Code Checked: ___
Points Scored: 00

Total Points Factor 3: 10 10

FACTOR 4: Public Health Impact

Is there a public drinking water supply located within 50 miles downstream of the effluent discharge (this includes any body of water to which the receiving water is a tributary)? A public drinking water supply may include infiltration galleries, or other methods of conveyance that ultimately get water from the above referenced supply.

___ YES (if yes, check toxicity potential number below)
✓ NO (if no, go to Factor 5)

Determine the human health toxicity potential from Appendix A. Use the same SIC code and subcategory reference as in Factor 1. (Be sure to use the human health toxicity group column -- check one below)

Toxicity Group	Code	Points	Toxicity Group	Code	Points	Toxicity Group	Code	Points
___ No process waste streams	0	0	___ 3.	3	0	___ 7.	7	15
___ 1.	1	0	___ 4.	4	0	___ 8.	8	20
___ 2.	2	0	___ 5.	5	5	___ 9.	9	25
			___ 6.	6	10	___ 10.	10	30

Code Number Checked: ___
Total Points Factor 4: ___

NPDES No.: | V | A | 0 | 0 | 3 | 4 | 3 | 3 |

FACTOR 5: Water Quality Factors

A. Is (or will) one or more of the effluent discharge limits based on water quality factors of the receiving stream (rather than technology-based federal effluent guidelines, or technology-based state effluent guidelines), or has a wasteload allocation been assigned to the discharge?

	Code	Points
✓ Yes	1	10
___ No	2	0

B. Is the receiving water in compliance with applicable water quality standards for pollutants that are water quality limited in the permit?

	Code	Points
✓ Yes	1	0
___ No	2	5

C. Does the effluent discharged from this facility exhibit the reasonable potential to violate water quality standards due to whole effluent toxicity?

	Code	Points
✓ Yes	1	10
___ No	2	0

Code Number Checked: A | 1 | B | 1 | C | 1 |

Points Factor 5: A | 1 | 0 | + B | 0 | + C | 1 | 0 | = | 2 | 0 | TOTAL 20

FACTOR 6: Proximity to Near Coastal Waters

A. Base Score: Enter flow code here (from Factor 2): | 5 | 2 | *Enter the multiplication factor that corresponds to the flow code:* | .5 | 0 |

Check appropriate facility HPRI Code (from PCS):

	HPRI #	*Code*	*HPRI Score*	Flow Code	Multiplication Factor
___	1	1	20	11, 31, or 41	0.00
				12, 32, or 42	0.05
___	2	2	0	13, 33, or 43	0.10
				14 or 34	0.15
✓	3	3	30	21 or 51	0.10
				22 or 52	0.30
___	4	4	0	23 or 53	0.60
				24	1.00
___	5	5	20		

HPRI code checked: | 3 |

Base Score: (HPRI Score) 30 x (Multiplication Factor) .30 = 10 (TOTAL POINTS)

B. Additional Points--NEP Program
For a facility that has an HPRI code of 3, does the facility discharge to one of the estuaries enrolled in the National Estuary Protection (NEP) program (see instructions) or the Chesapeake Bay?

	Code	Points
✓ Yes	1	10
___ No	2	0

C. Additional Points--Great Lakes Area of Concern
for a facility that has an HPRI code of 5, does the facility discharge any of the pollutants of concern into one of the Great Lakes' 31 areas of concern (see instructions)

	Code	Points
___ Yes	1	10
___ No	2	0

Code Number Checked: A | 3 | B | 1 | C | 2 |

Points Factor 6: A | 1 | 0 | + B | 1 | 0 | + C | 0 | 0 | = | 20 | TOTAL 20

NPDES Permit Rating Work Sheet

NPDES NO: VA0003433

SCORE SUMMARY

Factor	Description	Total Points
1	Toxic Pollutant Potential	30
2	Flow/Stream flow Volume	20
3	Conventional Pollutants	10
4	Public Health Impacts	0
5	Water Quality Factors	20
6	Proximity to Near Coastal Waters	20
	TOTAL (Factors 1-6)	100

S1. Is the total score equal to or greater than 80? ✓ Yes (Facility is a major) ___ No

S2. If the answer to the above question is no, would you like this facility to be discretionary major?
___ No
___ Yes (add 500 points to the above score and provide reason below:

Reason:

NEW SCORE: 100

OLD SCORE: 100

Mark Sauer
Permit Reviewer's Name

(757) 518-2105
Phone Number

10/23/09
Date

Revised 2/2003

State "Transmittal Checklist" to Assist in Targeting Municipal and Industrial Individual NPDES Draft Permits for Review

Part I. State Draft Permit Submission Checklist

In accordance with the MOA established between the Commonwealth of Virginia and the United States Environmental Protection Agency, Region III, the Commonwealth submits the following draft National Pollutant Discharge Elimination System (NPDES) permit for Agency review and concurrence.

Facility Name: Hercules Incorporated

NPDES Permit Number: VA0003433

Permit Writer Name: Mark Sauer

Date: 10/23/09

Major [✓] **Minor** [ ] **Industrial** [✓] **Municipal** [ ]

I.A. Draft Permit Package Submittal Includes:	**Yes**	**No**	**N/A**
1. Permit Application?	✓		
2. Complete Draft Permit (for renewal or first time permit – entire permit, including boilerplate information)?	✓		
3. Copy of Public Notice?		✓	
4. Complete Fact Sheet?	✓		
5. A Priority Pollutant Screening to determine parameters of concern?	✓		
6. A Reasonable Potential analysis showing calculated WQBELs?	✓		
7. Dissolved Oxygen calculations?		✓	
8. Whole Effluent Toxicity Test summary and analysis?	✓		
9. Permit Rating Sheet for new or modified industrial facilities?	✓		

I.B. Permit/Facility Characteristics	Yes	No	N/A
1. Is this a new, or currently unpermitted facility?		✓	
2. Are all permissible outfalls (including combined sewer overflow points, non-process water and storm water) from the facility properly identified and authorized in the permit?	✓		
3. Does the fact sheet **or** permit contain a description of the wastewater treatment process?	✓		

I.B. Permit/Facility Characteristics - cont.	Yes	No	N/A
4. Does the review of PCS/DMR data for at least the last 3 years indicate significant non-compliance with the existing permit?		✓	
5. Has there been any change in streamflow characteristics since the last permit was developed?		✓	
6. Does the permit allow the discharge of new or increased loadings of any pollutants?		✓	
7. Does the fact sheet **or** permit provide a description of the receiving water body(s) to which the facility discharges, including information on low/critical flow conditions and designated/existing uses?	✓		
8. Does the facility discharge to a 303(d) listed water?		✓	
a. Has a TMDL been developed and approved by EPA for the impaired water?			✓
b. Does the record indicate that the TMDL development is on the State priority list and will most likely be developed within the life of the permit?			✓
c. Does the facility discharge a pollutant of concern identified in the TMDL or 303(d) listed water?			✓
9. Have any limits been removed, or are any limits less stringent, than those in the current permit?		✓	
10. Does the permit authorize discharges of storm water?	✓		
11. Has the facility substantially enlarged or altered its operation or substantially increased its flow or production?	✓		
12. Are there any production-based, technology-based effluent limits in the permit?	✓		
13. Do any water quality-based effluent limit calculations differ from the State's standard policies or procedures?		✓	
14. Are any WQBELs based on an interpretation of narrative criteria?		✓	
15. Does the permit incorporate any variances or other exceptions to the State's standards or regulations?		✓	
16. Does the permit contain a compliance schedule for any limit or condition?		✓	
17. Is there a potential impact to endangered/threatened species or their habitat by the facility's discharge(s)?		✓	
18. Have impacts from the discharge(s) at downstream potable water supplies been evaluated?	✓		
19. Is there any indication that there is significant public interest in the permit action proposed for this facility?	✓		
20. Have previous permit, application, and fact sheet been examined?	✓		

Part II. NPDES Draft Permit Checklist

Region III NPDES Permit Quality Review Checklist – For Non-Municipals

(To be completed and included in the record for all non-POTWs)

II.A. Permit Cover Page/Administration	Yes	No	N/A
1. Does the fact sheet **or** permit describe the physical location of the facility, including latitude and longitude (not necessarily on permit cover page)?	✓		
2. Does the permit contain specific authorization-to-discharge information (from where to where, by whom)?	✓		

II.B. Effluent Limits - General Elements	Yes	No	N/A
1. Does the fact sheet describe the basis of final limits in the permit (e.g., that a comparison of technology and water quality-based limits was performed, and the most stringent limit selected)?	✓		
2. Does the fact sheet discuss whether "antibacksliding" provisions were met for any limits that are less stringent than those in the previous NPDES permit?			✓

II.C. Technology-Based Effluent Limits (Effluent Guidelines & BPJ)	Yes	No	N/A
1. Is the facility subject to a national effluent limitations guideline (ELG)?	✓		
a. If yes, does the record adequately document the categorization process, including an evaluation of whether the facility is a new source or an existing source?	✓		
b. If no, does the record indicate that a technology-based analysis based on Best Professional Judgement (BPJ) was used for all pollutants of concern discharged at treatable concentrations?			✓
2. For all limits developed based on BPJ, does the record indicate that the limits are consistent with the criteria established at 40 CFR 125.3(d)?	✓		
3. Does the fact sheet adequately document the calculations used to develop both ELG and /or BPJ technology-based effluent limits?	✓		
4. For all limits that are based on production or flow, does the record indicate that the calculations are based on a "reasonable measure of ACTUAL production" for the facility (not design)?	✓		
5. Does the permit contain "tiered" limits that reflect projected increases in production or flow?		✓	
a. If yes, does the permit require the facility to notify the permitting authority when alternate levels of production or flow are attained?			✓
6. Are technology-based permit limits expressed in appropriate units of measure (e.g., concentration, mass, SU)?	✓		

II.C. Technology-Based Effluent Limits (Effluent Guidelines & BPJ) – cont.	Yes	No	N/A
7. Are all technology-based limits expressed in terms of both maximum daily, weekly average, and/or monthly average limits?	✓		
8. Are any final limits less stringent than required by applicable effluent limitations guidelines or BPJ?		✓	

II.D. Water Quality-Based Effluent Limits	Yes	No	N/A
1. Does the permit include appropriate limitations consistent with 40 CFR 122.44(d) covering State narrative and numeric criteria for water quality?	✓		
2. Does the record indicate that any WQBELs were derived from a completed and EPA approved TMDL?		✓	
3. Does the fact sheet provide effluent characteristics for each outfall?	✓		
4. Does the fact sheet document that a "reasonable potential" evaluation was performed?	✓		
a. If yes, does the fact sheet indicate that the "reasonable potential" evaluation was performed in accordance with the State's approved procedures?	✓		
b. Does the fact sheet describe the basis for allowing or disallowing in-stream dilution or a mixing zone?			✓
c. Does the fact sheet present WLA calculation procedures for all pollutants that were found to have "reasonable potential"?	✓		
d. Does the fact sheet indicate that the "reasonable potential" and WLA calculations accounted for contributions from upstream sources (i.e., do calculations include ambient/background concentrations where data are available)?		✓	
e. Does the permit contain numeric effluent limits for all pollutants for which "reasonable potential" was determined?	✓		
5. Are all final WQBELs in the permit consistent with the justification and/or documentation provided in the fact sheet?	✓		
6. For all final WQBELs, are BOTH long-term (e.g., average monthly) AND short-term (e.g., maximum daily, weekly average, instantaneous) effluent limits established?		✓	
7. Are WQBELs expressed in the permit using appropriate units of measure (e.g., mass, concentration)?	✓		
8. Does the fact sheet indicate that an "antidegradation" review was performed in accordance with the State's approved antidegradation policy?	✓		

II.E. Monitoring and Reporting Requirements	Yes	No	N/A
1. Does the permit require at least annual monitoring for all limited parameters?	✓		
a. If no, does the fact sheet indicate that the facility applied for and was granted a monitoring waiver, AND, does the permit specifically incorporate this waiver?			
2. Does the permit identify the physical location where monitoring is to be performed for each outfall?	✓		
3. Does the permit require testing for Whole Effluent Toxicity in accordance with the State's standard practices?	✓		

II.F. Special Conditions	Yes	No	N/A
1. Does the permit require development and implementation of a Best Management Practices (BMP) plan or site-specific BMPs?	✓		
a. If yes, does the permit adequately incorporate and require compliance with the BMPs?	✓		
2. If the permit contains compliance schedule(s), are they consistent with statutory and regulatory deadlines and requirements?			✓
3. Are other special conditions (e.g., ambient sampling, mixing studies, TIE/TRE, BMPs, special studies) consistent with CWA and NPDES regulations?	✓		

II.G. Standard Conditions	Yes	No	N/A
1. Does the **permit** contain all 40 CFR 122.41 standard conditions or the State equivalent (or more stringent) conditions?	✓		

List of Standard Conditions – 40 CFR 122.41

Duty to comply
Duty to reapply
Need to halt or reduce activity not a defense
Duty to mitigate
Proper O & M
Permit actions
Property rights
Duty to provide information
Inspections and entry
Monitoring and records
Signatory requirement
Bypass
Upset
Reporting Requirements
Planned change
Anticipated noncompliance
Transfers
Monitoring reports
Compliance schedules
24-Hour reporting
Other non-compliance

2. Does the permit contain the additional standard condition (or the State equivalent or more stringent conditions) for existing non-municipal dischargers regarding pollutant notification levels [40 CFR 122.42(a)]?	✓		

Part III. Signature Page

Based on a review of the data and other information submitted by the permit applicant, and the draft permit and other administrative records generated by the Department/Division and/or made available to the Department/Division, the information provided on this checklist is accurate and complete, to the best of my knowledge.

Name	Mark Sauer
Title	Permit Writer
Signature	
Date	10/23/09

ATTACHMENT 13

CHRONOLOGY SHEET

VPDES PERMIT PROGRAM

CHRONOLOGY OF EVENTS

APPLICATION RECEIVED	APPLICATION RETURNED	ADDITIONAL INFO REQUESTED	APPLICATION/ADD INFO DUE BACK IN RO	APPLICATION/ADD INFO RECEIVED
SEE BELOW	FOR ALL	DATES AND	DESCRIPTIONS	

Date	DESCRIPTIVE STATEMENT [CHRONOLOGY OF EVENTS] (Meetings, telephone calls, letters, memos, hearings, etc. affecting permit from application to issuance)
March-April 2008	Notification from Hercules and discussions with Hercules to address biological pathogens affecting test results (pathogen interference). The permittee will begin running side-by-side toxicity tests using UV radiation to show effects of pathogen interference is cause of observed toxicity.
June 30, 2008	DEQ received a letter from Hercules dated June 27, 2008 that Tall Oil production is ceasing at the plant. Tall Oil production ceased May 15, 2008. Hercules estimated that it would take four months to clean and decommission the Tall Oil process equipment. Permit needs to be modified to address this change in production which will affect federal effluent guideline limitations. DEQ will initiate a modification once the tall oil process equip is cleaned and there is no tall oil process water contributing to outfall 201. At this time, the WET language will be revised to include radiation treatment for WET samples.
August 18, 2008	DEQ notifies Hercules that the procedure for UV-treated samples shall be 1.5 hours at 8 watts and the permittee can return to quarterly sampling using the UV treatment scheme outlined in the email.
September 2008	Hercules notifies DEQ that Ashland, Inc. intends to acquire Hercules and Hercules will become a wholly owned subsidiary of Ashland. The name or owner of the Franklin facility will not change and this will not affect the permit modification.
October 2008	DEQ and Hercules staff work on determining proper flow for outfall 201 to use for limit derivation for the modification. 135,000 gallons per day is decided to be used, as it was in the previous permit.
October 2, 2008	Hercules' consultant, GES, requests permission by letter on behalf of Hercules to discharge water from the Wastewater Holing Lagoon and Sludge Pits through VPDES outfall 002, in conjunction with and EPA-lead RCRA corrective action plan at the site.
October 8, 2008	Mark Sauer writes a letter to GES, copy Hercules, acknowledging the need to discharge the wastewater and informing the consultant that the discharge is not addressed in the VPDES permit and the DEQ does not intend to modify the permit to address this discharge. If the permittee determines they need to discharge the water through the outfall, al limits must be met at the outfall and this discharge is not part of the permitted discharge and would be done at the owner's risk.
October 20, 2008	DEQ receives a letter from Hercules dated October 13, 2008 requesting additional items be included in the permit modification in addition to the elimination of the Tall Oil contribution to outfall 201.
December 17, 2008	Meeting held between Hercules and DEQ staff to discuss all items to be considered in the modification. The additional items include adding the lagoon and sludge pit water instead of discharging at their own risk, changing the Aquapel classification from subpart F to subpart C based on a review of the documents, the feedstock for the Aquapel process and some revisions to the process made a while back by Hercules, changing the WET language to include the UV radiation language and consideration of discontinuing the use of calcium chloride to increase hardness in the discharge, and addition of three storm water outfalls found during recent inspections.

Date	DESCRIPTIVE STATEMENT [CHRONOLOGY OF EVENTS] (Meetings, telephone calls, letters, memos, hearings, etc. affecting permit from application to issuance)
April 22, 2009	Email copy of Letter received from Hercules consultant, dated April 20, 2009, detailing the rationale and justification for changing the Aquapel process from subpart F to subpart C. Portions of the development document attached to the letter. Hard copy was received April 29, 2009
June 15, 2009	Letter received from Hercules consultant dated June 12, 2009 requesting that the wastewater holding lagoon and sludge pit dewatering discharge be added to the permit modification and presenting analytical data for the wastewater from the wastewater lagoon and sludge pit.
July 23, 2009	Letter from Ashland dated July 10, 2009 authorizing plant personnel to sign and certify reports, applications, etc for the VPDES permit.
August 20, 2009	Discussion with Hercules consultant - assuring that Hercules has not discharged any water from the holding lagoon and sludge pit yet, waiting for the permit mod to do so.
August 24, 2009	Discussions with Hercules staff concerning all items the permit mod will address and informing Hercules that we will include the dewatering as a new internal outfall 202.
September 1, 2009	DEQ discussion with EPA region III permit staff and enforcement staff determining that EPA agrees with DEQ proposal to treat dewatering of lagoon and pit as an internal outfall and all limits must be met at the internal outfall. EPA agrees with this approach.
October 22, 2009	DEQ (Sauer) discussion with Hercules staff (McConaghy) informing Hercules that based on DEQ review of past TRE information and toxics reports, we will not be including any changes to the calcium chloride addition in the modified permit. This chemical addition must remain as is because Hercules determined low hardness water was largely the cause of the toxicity requiring the TRE and WET limit. During this conversation, Hercules alerted DEQ that they would be submitting a revised Form 2C to include the discharge of RO reject water to the modification. We informed Hercules staff that the permit was nearly drafted and adding the new source would add about two weeks to the development and processing time. Form 2C and cover letter will be coming soon, the draft permit and fact sheet will be revised accordingly.
October 23, 2009	DEQ (Sauer) sent Hercules a courtesy copy of the draft permit by email for their initial review. The official copy will be sent once the draft is revised to include the RO discharge. EPA will also need to review the draft permit prior to DEQ issuing it.
October 26, 2009	Revised application received. This will be the application complete date.
October 26-29, 2009	Fact sheet and draft permit revised, finalized and ready for distribution for review.
October 27, 2009	Sent to EPA
November 20, 2009	Comments received from permittee
November 25, 2009	Draft permit and fact sheet revised and letter sent to permittee describing the revisions made

Sauer,Mark

From: Sauer,Mark
Sent: Tuesday, October 27, 2009 4:33 PM
To: 'Smith.Mark@epamail.epa.gov'
Subject: VA0003433 Hercules Franklin Draft VPDES Permit for Review
Attachments: MHS-Hercules mod permit 2009.doc

Mark – Attached is the draft VPDES permit VA0003433 for review.

This is a permit modification that addresses a number of items. The items contained in this modification are listed below.

The fact sheet for this modification is included in a separate email for size reasons. The fact sheet is included in a separate email in two parts due to the size of the fact sheet.

The permit modification in 2009 consists of the following:

1. Recalculating federal guideline effluent limitations for outfall 201 based on the deletion of the tall oil process at the facility. Limits are presented in Attachment 5; rationales and calculations are presented in Attachment 6.
2. Reclassifying the Aquapel process from subcategory F to subcategory C under 40 CFR 454 and recalculating effluent guideline limits based on the reclassification. Limits are presented in Attachment 5; rationales and calculations are presented in Attachment 6.
3. Adding a new internal outfall 202 to address the discharge of wastewater holding lagoon and sludge pit dewatering under an EPA-lead RCRA corrective action. Limits are presented in Attachment 5; rationales and calculations are presented in Attachment 6.
4. Adding three new storm water outfalls and associated monitoring based on inspections at the facility identifying the storm water discharges.
5. Adding and revising Part I.D. storm water conditions to address the new storm water outfalls.
6. Adding and revising language in the WET limit section to address the effect of biological pathogens on the test organisms.
7. Adding wording to the O&M Manual Special Condition to require the Manual to address proper procedures for solvent handling and storage, per a request from EPA. Adding wording to the O&M Manual Special Condition to address the new reverse osmosis system at the facility.
8. Adding the discharge of reject water and occasional backwash water from a reverse osmosis unit to the sources contributing to outfall 002. This discharge will enter the discharge ditch prior to the sampling point for outfall 002 at a rate of approximately 65,000 gallons per day. Additional limitations for dissolved oxygen at outfall 002 are included in the permit in accordance with Agency guidance and water quality standards.
9. Adding a special condition to address any chemicals that may be used
in the reverse osmosis system.

There are no changes to effluent limitations or monitoring conditions for outfalls 902 and 003 with this modification. There are no changes to Part C, Other Special Conditions, with this modification.

Mark Sauer
DEQ-TRO Water Permits Section
757-518-2105
mark.sauer@deq.virginia.gov

Sauer,Mark

From: Sauer,Mark
Sent: Tuesday, October 27, 2009 4:37 PM
To: 'Smith.Mark@epamail.epa.gov'
Subject: VA0003433 Hercules Franklin Fact Sheet for review
Attachments: Hercules fact sheet Attach 1-6.pdf; Hercules fact sheet 7-14.pdf

Mark –

Attached is the fact sheet for VPDES permit VA0003433 for the Hercules modification. The fact sheet is attached in two parts due to the size of the fact sheet. The draft permit was sent under separate email.

The permit modification in 2009 consists of the following:

1. Recalculating federal guideline effluent limitations for outfall 201 based on the deletion of the tall oil process at the facility. Limits are presented in Attachment 5; rationales and calculations are presented in Attachment 6.
2. Reclassifying the Aquapel process from subcategory F to subcategory C under 40 CFR 454 and recalculating effluent guideline limits based on the reclassification. Limits are presented in Attachment 5; rationales and calculations are presented in Attachment 6.
3. Adding a new internal outfall 202 to address the discharge of wastewater holding lagoon and sludge pit dewatering under an EPA-lead RCRA corrective action. Limits are presented in Attachment 5; rationales and calculations are presented in Attachment 6.
4. Adding three new storm water outfalls and associated monitoring based on inspections at the facility identifying the storm water discharges.
5. Adding and revising Part I.D. storm water conditions to address the new storm water outfalls.
6. Adding and revising language in the WET limit section to address the effect of biological pathogens on the test organisms.
7. Adding wording to the O&M Manual Special Condition to require the Manual to address proper procedures for solvent handling and storage, per a request from EPA. Adding wording to the O&M Manual Special Condition to address the new reverse osmosis system at the facility.
8. Adding the discharge of reject water and occasional backwash water from a reverse osmosis unit to the sources contributing to outfall 002. This discharge will enter the discharge ditch prior to the sampling point for outfall 002 at a rate of approximately 65,000 gallons per day. Additional limitations for dissolved oxygen at outfall 002 are included in the permit in accordance with Agency guidance and water quality standards.
9. Adding a special condition to address any chemicals that may be used
in the reverse osmosis system.

There are no changes to effluent limitations or monitoring conditions for outfalls 902 and 003 with this modification. There are no changes to Part C, Other Special Conditions, with this modification.

Mark Sauer
DEQ-TRO Water Permits Section
757-518-2105
mark.sauer@deq.virginia.gov

ATTACHMENT 14

PERTINENT CORRESPONDENCE

HERCULES

Hercules Incorporated
27123 Shady Brook Trail
Courtland, VA 23837-2034
(757) 562-3121
www.herc.com

March 7, 2008

Certified Mail 7004 1350 0003 2436 2185
Return Receipt Requested

Department of Environmental Quality
Tidewater Regional Office
5636 Southern Boulevard
Virginia Beach, VA 23462
ATTN: Ms. Deborah Kay - Compliance Auditor

RE: Hercules Incorporated - VPDES Permit #VA0003433

Dear Ms. Kay:

Attached you will find the Discharge Monitoring Report for February 2008. There were three excursions from permit limits this month.

The first excursion was for the facility failing the first quarter Chronic Whole Effluent Toxicity Test for the Pimephales promelas 7-day Larval Survival and Growth Test. That test result is attached. A root cause analysis was performed. There was no indication of any malfunction in any of the facility processes that discharge through Outfall 002. A discussion with our testing lab, Coastal Bioanalysts, Inc., indicated that an outside influence, a biological pathogen, may be the root cause of this toxicity test failure. We have also asked an industry expert (R. Guinn) to review the test data and he made the following comments:

> "I have reviewed your WET test data and it appears that the fathead minnow test may have failed due to a pathogenic interference to the test that is not related to toxicity. This is a phenomenon that we have dealt with for many years and I co-authored a paper on the subject. The pathogen interference causes random mortality within the test which normally is shown by large variability in the replicate survival for each effluent concentration. In the case of your test this was not strongly evident, but the lack of a dose response which was seen in your test is another symptom. The dose response should show an increase in toxicity as you increase the effluent concentration. In your test there is no significant difference in survival for the 8, 16, 58, and 100% effluent concentrations, which would be expected if there were actual toxicity involved. In addition, the biomass endpoint had an interrupted dose response. This means that for the biomass data for this test there was no statistical difference between the control and the 100% effluent concentration, but there were differences between the control and 8, 16, and 58% effluent concentrations. Under the normal definition of the no observable effect concentration (NOEC) the highest concentration with no adverse effect is the NOEC, which in this case would be the 100% effluent concentration. However, with an interrupted dose response EPA indicates that the dose response relationship should be evaluated and it is open to interpretation by the lab and regulating authority. While I could not find in the report what dilution water was used in the test, I suspect it was lab water and this is why there were significant differences in survival for those concentrations and the control and the lowest effluent concentration. Basically you are testing your effluent, which appears to contain the pathogen, against lab water which does not contain the pathogen, which often will make it appear as though you have a dose response because the likelihood of fish being affected by the pathogen increases with the percentage of effluent. Another very definitive symptom of the pathogen interference and a lack of toxicity is to evaluate the chronic endpoint of minnow growth. The growth endpoint is evaluated by dividing the total weight of each replicate by the

number of surviving larvae to get a mean weight. Then the mean weights of all of the replicates are statistically compared in a similar manner as is done with the biomass endpoint to see if toxicity has impacted the growth endpoint. In the case of your test I conducted this statistical test and there were no significant differences between the control and any of the effluent concentrations, thus no toxicity effects on growth. Prior to 1994 this was the way the statistical compliance test for the chronic endpoint was performed. The biomass endpoint that you have to report is impacted by survival which has been impacted by the pathogen interference causing mortality, it is not toxicity. The reason that this occurs is in how the mean weight for biomass is calculated. It is calculated by dividing the total weight of larvae for each replicate by the original number of larvae, not the number that survived. Therefore, any mortality will decrease the calculated mean weight using the biomass endpoint.

While your test did meet all of the normal acceptability criteria it did demonstrate aspects of an atypical test. A clear dose response was not shown in the survival data and there was an interrupted dose response in the biomass data. According to EPA guidance these results should be reviewed closely by the lab and regulatory authority. The statistical analysis that I did for the growth endpoint showed no statistical differences, and in fact, the highest true mean weights were in the 100% effluent concentration. These all strongly suggest the pathogen interference and not toxicity. This should be recognized by the lab conducting the test and discussed with the regulatory agency. "

The facility has scheduled a new Toxicity test for the week of March 3, 2008. Results for that test will be attached to the March DMR. Additionally, the facility is setting up a series of side by side toxicity testing to validate the biological pathogen presence.

The second and third excursions involved exceedances of the allowable maximum loading limit and of the monthly average loading limit of Total Suspended Solids (TSS) for Outfall 201. On February 27, 2008, the TSS at Outfall 201 measured 757 lbs/day which exceeded the permit limit maximum of 563 lbs/day. This also resulted in a monthly average TSS of 232 lbs/day which exceeded the permit limit maximum of 194 lbs/day. Investigation has indicated no malfunctions in the systems that discharge through Outfall 201. Visual observation of the Outfall 201 box where the sample is obtained showed large amounts of organic material in the waste water at the time of sample retrieval. This is attributed to the algal material present on the walls of the box being released into the waste water due to a natural phenomenon (not previously seen) or the action of a third party. The retain of this sample was sent to Universal Laboratories for analysis of solids as well as an identification of the large, fluffy visible solids present in the sample container. The lab was unable to definitively identify algae due to the solids not being viable (alive), however they did appear to be microbiological. The lab did estimate that >= 96% of the total solids in the sample were the chunky/fluffy solids in the sample. A copy of the Universal Laboratories findings is attached. Based on the internal plant data (115 mg/l at the final clarifier and no deviations from the Aquapel neutralization system) and the visual indications of 201 box contamination at the time of sample retrieval, Hercules believes that this sample should be invalidated as not representative of the facilities' discharge.

HERCULES

Hercules Incorporated
27123 Shady Brook Trail
Courtland, VA 23837-2034
(757) 562-3121
www.herc.com

April 7, 2008

Certified Mail 7005 1160 0002 9784 7311
Return Receipt Requested

Department of Environmental Quality
Tidewater Regional Office
5636 Southern Boulevard
Virginia Beach, VA 23462
ATTN: Ms. Deborah Kay - Compliance Auditor

RE: Hercules Incorporated - VPDES Permit #VA0003433

Dear Ms. Kay:

Attached you will find the Discharge Monitoring Report for March 2008. There were no excursions from permit limits this month.

The Chronic Whole Effluent Toxicity Test for the Pimephales promelas 7-day Larval Survival and Growth Test was repeated as required due to the test failure reported in the February 2008 DMR. This test was performed with a parallel test using UV radiated samples to establish the presence of a biological pathogen. As can be seen from the attached letter and test results from Pete DeLisle from Coastal Bioanalytical, this test was successful in establishing the presence of a biological pathogen that has interfered in this test as well as the failures reported in the February 2008 DMR and the August 2007 DMR. Based on the presence of a pathogen, none of these three tests should be used for compliance purposes.

In light of the results reported by Mr. Delisle and the conversation with Mr. Mark Sauer of DEQ on April 26, 2008, Hercules is requesting that a meeting be arranged between Hercules and DEQ to discuss alternate test procedures for Hercules Whole Effluent Toxicity testing.

Per the request from your office, a duplicate set of copies of this report marked "EPA" is enclosed.

If there are any questions or concerns regarding this submittal, please contact me at (757) 562-3121 ext. 176.

Sincerely,

Roy P. Hart

Roy P. Hart
SHE Manager

Coastal Bioanalysts, Inc.

March 28, 2008

Roy Hart
Hercules – Franklin
27123 Shadybrook Trail
Courtland, VA 23837

Re: Pathogen interference in fathead minnow tests

Dear Roy,

As we have been discussing over the last few weeks, the cause of the apparent toxicity in chronic fathead minnow tests conducted on effluent from outfall 002 appears to be due to the presence of an indigenous fish pathogen. Specifically, the tests conducted with samples collected 8/21/07-8/24/07 and 2/5/08-2/8/08 that exhibited TU_C values of 25 or greater (NOEC $\leq$ 4%) and did not meet the permit limit of 16% should be considered false positives. Also, in reviewing tests performed over the last couple of years it appears that several tests that exhibited some toxicity but met the permit limit may also have been affected by fish pathogens (e.g. September 2007, August 2006, June 2005).

Toxicity due to the presence of indigenous pathogens was confirmed in side-by-side tests conducted this month. The differences in results between the fathead minnow tests conducted with UV-treated and untreated effluent were drastic: the NOEC for untreated sample was <4% while the NOEC for UV-treated sample was 100%. In the untreated test mortality began around test day 3 to 4. The pattern was erratic and unrelated to effluent concentration. Variability within treatments was high. While biomass (fish dry weight/initial number animals) was affected at all concentrations, net growth (fish dry weight/number survivors) was not. All of these symptoms are suggestive of pathogen interference and removal of symptoms by treatment with UV confirms this to be the case.

While there was still some spotty mortality in the UV-treated test this may be due to incomplete eradication of the pathogen by UV. The amount of irradiation necessary for effective kill depends greatly on sample turbidity and the type/species of causative organism. For example, while bacteria such as *E. coli* (although not a fish pathogen) require only 6600 $\mu Ws/cm^2$ for effective kill, molds such as *Aspergillus niger* require 330000 $\mu Ws/cm^2$ for elimination. A wide variety of organisms, such as fungi, filamentous algae, bacteria and viruses, can potentially act as fish pathogens.

Pathogens are considered a test interference by EPA and they recommend appropriate changes in test procedures if the presence of pathogens can be confirmed. Future compliance testing using fathead minnows should use UV-irradiated samples to avoid further false positive results. Because *Ceriodaphnia* appear to be unaffected, tests with this species should use non-irradiated samples. I recommend that the DEQ be petitioned to allow this test modification.

If you have any questions please do not hesitate to contact me. If you prefer I can be contacted via email at pfd@coastalbio.com.

Sincerely yours,

Peter F. De Lisle, Ph.D.
President

6400 Enterprise Court, Gloucester, VA 23061
Phone 804-694-8285 Fax 804-695-1129 www.coastalbio.com

Certified Mail – 7004 1350 0003 2436 1706
Return Receipt Requested

HERCULES

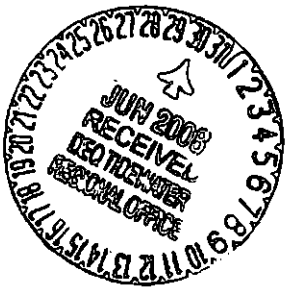
PAPER TECHNOLOGIES AND VENTURES

Hercules Incorporated
27123 Shady Brook Trail
Courtland, VA 23837-2034
Tel: (757) 562-3121

www.herc.com

June 27, 2008

Ms. Deanna Austin
Department of Environmental Quality
Tidewater Regional Office
5636 Southern Boulevard
Virginia Beach, VA 23462



Re: VPDES Permit VA 0003433

Dear Ms. Austin:

This letter is to inform you of Eastman's decision to cease Eastman Tall Oil operations at the Hercules – Franklin site. The Eastman Pamolyn operations will continue at Franklin. The Tall Oil process was a significant portion of the on-site wastewater treatment facilities operated by Hercules under VPDES permit VA 0003433 and will need to be removed from the permit.

Tall Oil production was ceased on May 15, 2008. Eastman is currently cleaning and decommissioning the Tall Oil process equipment. It is estimated that this effort will take another four months through the end of October.

As discussed with Mr. Mark Sauer of your office, this letter is being sent at the time that Hercules and Eastman had a better estimate of the time necessary to decommission the Tall Oil process.

Hercules looks forward to working with the department to modify and revise the wastewater discharge permit. If you should have any questions regarding this submittal, please contact me at (757) 562-3121 x155 or Mr. Roy Hart at (757) 562-3121 x176.

Regards,

Andrew B. Chapman
Plant Manager
Hercules Incorporated

cc: R. Hart - Hercules

Sauer,Mark

From: Austin,Deanna
Sent: Monday, August 18, 2008 11:11 AM
To: 'cmoniz@herc.com'
Cc: Sauer,Mark
Subject: Toxicity Sampling Updates

Hi Chris,
In response to our phone conversation this AM, you are able to go back to quarterly toxicity monitoring starting with the 4th Quarter 2008. Toxicity monitoring shall be done using the UV treatment for 1.5 hours at 8 watts unless something else is agreed upon. It is up to you if you want to continue with untreated and UV treated samples but with the permit modification that is currently in process, the permit will only require UV treated since it will be our agreed upon method. You may report the UV treated sample results on the DMR with a note in the comment section about the treatment process until the permit is modified.

Also, as part of your permit modification, we will be adding the outfalls that the EPA has requested to be in the permit. You will need to send us information about each outfall that needs to be added. This may be done by email to Mark Sauer, as he is your permit writer. If you have any questions about the information he needs, please feel free to email or call him at 518-2105.

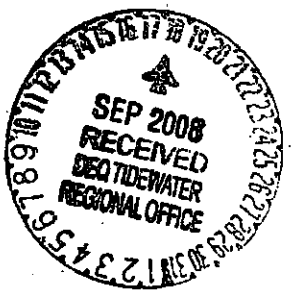
Deanna Austin
DEQ-TRO Water Permits
5636 Southern Blvd
Virginia Beach, VA 23462
Phone: 757-518-2008
Fax: 757-518-2009

HERCULES

Hercules Incorporated
Aqualon Division
1111 Hercules Road
Hopewell, VA 23860
(804) 541-4300
Fax: (804) 541-4492
www.herc.com

September 15, 2008

Certified Mail/Return Receipt Requested



Mr. Richard Weeks
Chief Deputy
Commonwealth of Virginia
Department of Environmental Quality
629 East Main Street
Richmond, Virginia 23219

Dear Mr. Weeks:

RE: Notification of Stock Purchase of Hercules Incorporated by Ashland, Inc.

Ashland, Inc. has announced its intention to acquire Hercules Incorporated ("Hercules") and thereafter operate Hercules as a wholly owned subsidiary of Ashland. The transaction is expected to close by the end of 2008. After closing, Hercules will remain the owner and operator of all of its assets, businesses, facilities, plants and subsidiaries. Although the board of directors and corporate officers of Hercules will change, the heads of Hercules' major businesses (i.e. Aqualon and Paper Technologies & Ventures) are expected to remain the same.

Hercules Incorporated owns and operates two facilities in the Commonwealth of Virginia. These facilities are located at 27123 Shady Brook Trail, Courtland, Virginia, 23837 (Franklin Plant) and 1111 Hercules Road, Hopewell, Virginia, 23860 (Hopewell Plant). The names of these facilities will not change after the transaction takes place and, as previously mentioned, Hercules will remain the owner and operator of these facilities in the future.

It is our understanding that based on the structure of this transaction, there are no actions that we must take (e.g. notifications, document/permit transfers, etc.) with the Virginia Department of Environmental Quality. If this is not correct, please inform us immediately so that we may take the required actions. Meanwhile, thank you for your understanding and cooperation. Please contact Andrew C. Lucas at (804) 541-4399 should you have any questions or comments regarding this notification.

Respectfully,

James J. Reyher
Plant Manager
Hopewell Plant

Andrew B. Chapman
Plant Manager
Franklin Plant

JJR/ABC:lbr
LettertoDEQRegardingAshland

C: Kyle I. Winter – Regional Deputy Director – DEQ-PRO
Maria R. Nold – Regional Deputy Director – DEQ-TRO
Gay M. Trovei - Hercules Incorporated
Richmond L. Williams - Hercules Incorporated
Stephen G. Spence - Hercules Incorporated

Aqualon

Sauer,Mark

From: CMoniz@Herc.com
Sent: Friday, October 03, 2008 3:01 PM
To: Sauer,Mark
Subject: Re: Outfall 201

Mark,

Outfall 201 has 4 inputs to it per our application/renewal packages. From Form 2c of the October 2006 VPDES Renewal package, I see 135,000gpd as the discharge rate for the neutralized waste water going out outfall 201 from our Aquapel system. I would not see that changing. What may change is the discharge from the activated sludge system which treats, in part, the discharge from the CTO distillation process which is now shut down. From the renewal, I see that flow from the CTO distillation process at 54,000gpd. I do not have an estimate for that yet but will try to get it to you by the end of next week with the other information you requested.

Chris

Christopher J. Moniz
Safety/Environmental Engineer - Franklin
Office - 757-562-3121 ext 112
HITS- 562-3112
Fax - 757-562-5660

"Sauer,Mark" <mhsauer@deq.virginia.gov>

10/03/2008 02:35 PM

To <CMoniz@Herc.com>
cc
Subject Outfall 201

Chris –

Outfall 201 in the VPDES permit is the outfall from the treatment plant. The last application indicated the average flow from 201 was 135,000 gallons per day. With the Tall Oil process no longer going to the treatment plant, how does this affect the flow from outfall 201? Do you have a revised average flow from 201, or do I still consider it to be 135,000 g/day?

Thanks.

Mark Sauer
DEQ-TRO Water Permits Section
757-518-2105
mhsauer@deq.virginia.gov

Groundwater
& Environmental Services, Inc.

23 South 13th Street • Suite 201 • Richmond, Virginia 23219 • (804) 343-0700 • Fax (804) 343-0770

October 2, 2008

Mr. Mark Sauer
Virginia Department of Environmental Quality
5636 Southern Boulevard
Virginia Beach, Virginia 23462

Re: Wastewater Lagoon and Sludge Pit Water Discharge Request
Hercules Incorporated, Franklin, Virginia
VA0003433

Dear Mr. Sauer,

On behalf of Hercules, Groundwater & Environmental Services, Inc (GES) is requesting permission to discharge the Wastewater Holding Lagoon and Waste Pit water through VPDES Outfall 002. As we discussed over the phone, Hercules is in the process of collecting bids to remediate the West Area under our Resource Conservation and Recovery Act (RCRA) Facility Lead Agreement with Region 3 of the Environmental Protection Agency (EPA). All work in the West Area is approved by EPA Region 3. Further information concerning our request is presented in this letter.

The following Solid Waste Management Units (SWMUs) are included in the RCRA Corrective Action process, are located in the West Area and are intended for remediation starting in November 2008:

- SWMU 14 – Holding Lagoon (Lagoon); and
- SWMUs 20, 21, 22, and SWMU 44 Area 4 – Sludge Pits.

The objective of the remedial activities is to remove the source material for off-site disposal. The Lagoon is an unlined lagoon that formerly received wastewater prior to treatment and discharge through the Virginia Pollution Discharge Elimination System (VPDES) permit. The Lagoon was active until 2003 when it was removed from service. There is approximately 1.5 million gallons of water in the Lagoon which will have to be removed prior to stabilization and off-site disposal of the sludge. Current analytical results of the quality of water in the Lagoon are included as **Table 1**. This request is for disposal of only the water in the Lagoon.

The Sludge Pits are unlined pits that were used for the disposal of wastewater sludge that was generated in the wastewater treatment plant. During excavation and stabilization of this material, water is expected to collect in the excavation. We have collected a sample of this water and are awaiting analytical results. We will forward the analytical results once we have received them.

The water in the Lagoon, meets the current discharge limits at Outfall 002 for pH, total phosphorus, chromium, and copper. The water also meets the BOD and TSS discharge limits of Outfall 201. The analytical results for the three samples collected is presented in Table 1. Hercules is requesting permission to discharge the Lagoon water by the following methods:

- Discharge to the existing wastewater treatment plant; and/or
- Discharge directly to the Outfall 002 canal upstream of the monitoring point.

Once the analytical has been received, the same discharge options are requested for the waste from the Waste Pits..

We appreciate your consideration for allowing this water in the Outfall 002 discharge. Please let me know if you have any questions and we look forward to hearing from you.

Sincerely,

Cathy Warner

Catherine C. Warner, P.E., D.E.E,
Regional Manager

Cc: Andy Chapman – Hercules
Barbara Smith – EPA Region 3

Sample ID	LAG-1	LAG-2	LAG-3
Sample Collection Date	9/9/2008	9/9/2008	9/9/2008
Appendix IX Volatile Organic Compounds (ug/L)			
Acetone	**190**	**140**	**210**
Acetonitrile	40 U	40 U	40 U
Acrolein	20 U	20 U	20 U
Acrylonitrile	20 U	20 U	20 U
Benzene	**1.3**	**1.7**	**0.68 J**
Bromodichloromethane	1 U	1 U	1 U
Bromoform	1 U	1 U	1 U
Bromomethane	1 U	1 U	1 U
Methyl Ethyl Ketone	**19**	**20**	**21**
Carbon disulfide	**1.4 J**	**0.64 J**	**1.4 J**
Carbon tetrachloride	1 U	1 U	1 U
Chlorobenzene	1 U	1 U	1 U
Chloroethane	1 U	1 U	1 U
Chloroform	1 U	1 U	1 U
Chloromethane	**0.6 J**	1 U	1 U
Chloroprene	1 U	1 U	1 U
3-Chloropropene	1 U	1 U	1 U
Dibromochloromethane	1 U	1 U	1 U
1,2-Dibromo-3-Chloropropane	1 U	1 U	1 U
1,2-Dibromoethane	1 U	1 U	1 U
Dibromomethane	1 U	1 U	1 U
trans-1,4-Dichloro-2-butene	2 U	2 U	2 U
Dichlorodifluoromethane	1 U	1 U	1 U
1,1-Dichloroethane	1 U	1 U	1 U
1,2-Dichloroethane	1 U	1 U	1 U
1,1-Dichloroethene	1 U	1 U	1 U
cis-1,2-Dichloroethene	1 U	1 U	1 U
trans-1,2-Dichloroethene	1 U	1 U	1 U
1,2-Dichloropropane	1 U	**0.5 J**	1 U
cis-1,3-Dichloropropene	1 U	1 U	1 U
trans-1,3-Dichloropropene	1 U	1 U	1 U
Ethylbenzene	1 U	1 U	1 U
Ethyl methacrylate	1 U	1 U	1 U
Heptane	**5.1**	**4.7**	**5.1**
2-Hexanone	**2.2 J**	**3.5 J**	**2.9 J**
Iodomethane	5 U	5 U	5 U
Isobutyl alcohol	40 U	40 U	40 U
Methacrylonitrile	20 U	20 U	20 U
Methylene Chloride	5 U	5 U	5 U
Methyl methacrylate	1 U	1 U	1 U
methyl isobutyl ketone	**0.81 J**	10 U	10 U
Methyl tert-butyl ether	10 U	10 U	10 U
Pentachloroethane	5 U	5 U	5 U
Propionitrile	20 U	20 U	20 U
Styrene	1 U	1 U	1 U
1,1,1,2-Tetrachloroethane	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	1 U	1 U	1 U
Tetrachloroethene	1 U	1 U	1 U
Toluene	**3.0**	**4.5**	**2.2**
1,1,1-Trichloroethane	1 U	1 U	1 U
1,1,2-Trichloroethane	1 U	1 U	1 U
Trichloroethene	1 U	1 U	1 U
Trichlorofluoromethane	1 U	1 U	1 U
1,2,3-Trichlorobenzene	1 U	1 U	1 U
1,2,3-Trichloropropane	1 U	1 U	1 U
Vinyl acetate	2 U	2 U	2 U
Vinyl chloride	1 U	1 U	1 U
Xylenes, Total	**5.1**	**4.1**	**4.7**
Tentatively Identified Compounds (ug/L)			
Total Unknown Compounds	**216.8 T J N**	**365.7 T J N**	**183.8 T J N**
Appendix IX Semivolatile Organic Compounds (ug/L)			
Acenaphthene	97 U	94 U	94 U
Acenaphthylene	97 U	94 U	94 U
Acetophenone	97 U	94 U	94 U
2-Acetylaminofluorene	97 U	94 U	94 U
alpha-Pinene	97 U	94 U	94 U
4-Aminobiphenyl	97 U	94 U	94 U
Aniline	190 U	190 U	190 U
Anthracene	97 U	94 U	94 U
Aramite, Total	97 U	94 U	94 U
Benzo[a]anthracene	97 U	94 U	94 U
Benzo[b]fluoranthene	97 U	94 U	94 U
Benzo[k]fluoranthene	97 U	94 U	94 U
Benzo[g,h,i]perylene	97 U	94 U	94 U
Benzo[a]pyrene	97 U	94 U	94 U
Benzyl alcohol	97 U	94 U	94 U
Biphenyl	97 U	94 U	94 U
Bis(2-chloroethoxy)methane	97 U	94 U	94 U
Bis(2-chloroethyl)ether	97 U	94 U	94 U
bis(chloroisopropyl) ether	97 U	94 U	94 U

Sample ID	LAG-1	LAG-2	LAG-3
Sample Collection Date	9/9/2008	9/9/2008	9/9/2008
Appendix IX Semivolatile Organic Compounds (ug/L), cont.			
Bis(2-ethylhexyl) phthalate	97 U	94 U	94 U
4-Bromophenyl phenyl ether	97 U	94 U	94 U
Butyl benzyl phthalate	97 U	94 U	94 U
4-Chloroaniline	190 U	190 U	190 U
4-Chloro-3-methylphenol	97 U	94 U	94 U
2-Chloronaphthalene	97 U	94 U	94 U
2-Chlorophenol	97 U	94 U	94 U
4-Chlorophenyl phenyl ether	97 U	94 U	94 U
Chrysene	97 U	94 U	94 U
m & p - Cresol	**97**	**150**	**97**
o-Cresol	97 U	94 U	94 U
Diallate	97 U	94 U	94 U
Dibenz(a,h)anthracene	97 U	94 U	94 U
Dibenzofuran	97 U	94 U	94 U
Di-n-butyl phthalate	97 U	94 U	94 U
1,2-Dichlorobenzene	97 U	94 U	94 U
1,3-Dichlorobenzene	97 U	94 U	94 U
1,4-Dichlorobenzene	97 U	94 U	94 U
3,3'-Dichlorobenzidine	190 U	190 U	190 U
2,4-Dichlorophenol	97 U	94 U	94 U
2,6-Dichlorophenol	97 U	94 U	94 U
Diethyl phthalate	97 U	94 U	94 U
Dimethoate	97 U	94 U	94 U
p-Dimethylamino azobenzene	97 U	94 U	94 U
7,12-Dimethylbenz(a)anthracene	97 U	94 U	94 U
3,3'-Dimethylbenzidine	190 U	190 U	190 U
alpha,alpha-Dimethyl phenethylamine	19000 U	19000 U	19000 U
2,4-Dimethylphenol	97 U	94 U	94 U
Dimethyl phthalate	97 U	94 U	94 U
m-Dinitrobenzene	97 U	94 U	94 U
4,6-Dinitro-2-methylphenol	470 U	470 U	470 U
2,4-Dinitrophenol	470 U	470 U	470 U
2,4-Dinitrotoluene	97 U	94 U	94 U
2,6-Dinitrotoluene	97 U	94 U	94 U
Dinoseb	97 U	94 U	94 U
Di-n-octyl phthalate	97 U	94 U	94 U
1,4-Dioxane	97 U	94 U	94 U
Diphenyl ether	**18 J**	**20 J**	**25 J**
Disulfoton	97 U	94 U	94 U
Ethyl methanesulfonate	97 U	94 U	94 U
Parathion	97 U	94 U	94 U
Famphur	97 U	94 U	94 U
Fluoranthene	97 U	94 U	94 U
Fluorene	97 U	94 U	94 U
Hexachlorobenzene	97 U	94 U	94 U
Hexachlorobutadiene	97 U	94 U	94 U
Hexachlorocyclopentadiene	97 U	94 U	94 U
Hexachloroethane	97 U	94 U	94 U
Hexachlorophene	49000 U	47000 U	47000 U
Hexachloropropene	97 U	94 U	94 U
Indeno[1,2,3-cd]pyrene	97 U	94 U	94 U
Isophorone	97 U	94 U	94 U
Isosafrole	97 U	94 U	94 U
Methapyrilene	19000 U	19000 U	19000 U
3-Methylcholanthrene	97 U	94 U	94 U
Methyl methanesulfonate	97 U	94 U	94 U
2-Methylnaphthalene	97 U	94 U	94 U
Methyl parathion	97 U	94 U	94 U
Naphthalene	97 U	94 U	94 U
1,4-Naphthoquinone	97 U	94 U	94 U
1-Naphthylamine	97 U	94 U	94 U
2-Naphthylamine	97 U	94 U	94 U
2-Nitroaniline	470 U	470 U	470 U
3-Nitroaniline	470 U	470 U	470 U
4-Nitroaniline	470 U	470 U	470 U
Nitrobenzene	97 U	94 U	94 U
2-Nitrophenol	97 U	94 U	94 U
4-Nitrophenol	470 U	470 U	470 U
4-Nitroquinoline-1-oxide	190 U	190 U	190 U
N-Nitrosodi-n-butylamine	97 U	94 U	94 U
N-Nitrosodiethylamine	97 U	94 U	94 U
N-Nitrosodimethylamine	97 U	94 U	94 U
N-Nitrosodiphenylamine	97 U	94 U	94 U
N-Nitrosodi-n-propylamine	97 U	94 U	94 U
N-Nitrosomethylethylamine	97 U	94 U	94 U
N-Nitrosomorpholine	97 U	94 U	94 U
N-Nitrosopiperidine	97 U	94 U	94 U
N-Nitrosopyrrolidine	97 U	94 U	94 U
N-Nitro-o-toluidine	97 U	94 U	94 U

Sample ID	LAG-1	LAG-2	LAG-3
Sample Collection Date	9/9/2008	9/9/2008	9/9/2008
Appendix IX Semivolatile Organic Compounds (ug/L), cont.			
Pentachlorobenzene	97 U	94 U	94 U
Pentachloronitrobenzene	97 U	94 U	94 U
Pentachlorophenol	490 U	470 U	470 U
Phenacetin	97 U	94 U	94 U
Phenanthrene	97 U	94 U	94 U
Phenol	97 U	94 U	94 U
p-Phenylene diamine	19000 U	19000 U	19000 U
Phorate	97 U	94 U	94 U
2-Picoline	97 U	94 U	94 U
Pronamide	97 U	94 U	94 U
Pyrene	97 U	94 U	94 U
Pyridine	490 U	470 U	470 U
Safrole, Total	97 U	94 U	94 U
Sulfotepp	97 U	94 U	94 U
1,2,4,5-Tetrachlorobenzene	97 U	94 U	94 U
2,3,4,6-Tetrachlorophenol	97 U	94 U	94 U
Thionazin	97 U	94 U	94 U
o-Toluidine	97 U	94 U	94 U
1,2,4-Trichlorobenzene	97 U	94 U	94 U
2,4,5-Trichlorophenol	97 U	94 U	94 U
2,4,6-Trichlorophenol	97 U	94 U	94 U
o,o',o"-Triethylphosphorothioate	97 U	94 U	94 U
1,3,5-Trinitrobenzene	97 U	94 U	94 U
Methyl Phenols,Total	**97**	**150**	**97**
Tentatively Identified Compounds (ug/L)			
Total Unknown Compounds	**2,542 T J N**	**3,020 T J N**	**3,038 T J N**
Appendix IX Metals (ug/L)			
Aluminum	**680**	**570**	**710**
Antimony	20 U	20 U	20 U
Arsenic	**4.0 J B**	**7.0 J B**	**3.3 J B**
Barium	10 U	10 U	10 U
Beryllium	4 U	4 U	4 U
Cadmium	5 U	5 U	5 U
Chromium	**2.3 J**	**1.9 J**	**2.1 J**
Cobalt	10 U	10 U	10 U
Copper	20 U	20 U	**2.3 J**
Iron	**1,200**	**1,200**	**1,200**
Nickel	**11 J**	**9.9 J**	**8.3 J**
Lead	5 U	5 U	**2.9 J**
Manganese	**8.5 J**	**11**	**10**
Selenium	10 U	10 U	10 U
Silver	10 U	10 U	10 U
Thallium	25 U	25 U	25 U
Tin	50 U	50 U	50 U
Vanadium	**6.4 J**	**5.4 J**	**6.7 J**
Zinc	**22**	**12 J**	**19 J**
Mercury	0.2 U	0.2 U	0.2 U
Total Petroleum Hydrocarbons (mg/L)			
Diesel Range Organics [C10-C28]	**160**	**120**	**120**
Gasoline Range Organics (GRO)-C6-C10	**0.073**	**0.089**	**0.082**
PCBs (ug/L)			
PCB-1016	0.94 U	0.94 U	0.97 U
PCB-1221	1.9 U	1.9 U	1.9 U
PCB-1232	0.94 U	0.94 U	0.97 U
PCB-1242	0.94 U	0.94 U	0.97 U
PCB-1248	0.94 U	0.94 U	0.97 U
PCB-1254	0.94 U	0.94 U	0.97 U
PCB-1260	0.94 U	0.94 U	0.97 U
Dioxins/Furans (ng/L)			
2,3,7,8-TCDD	ND	ND	ND
Total TCDD	ND	ND	ND
Total PeCDD	ND	ND	ND
Total HxCDD	ND	ND	ND
Total TCDF	ND	ND	ND
Total PeCDF	ND	ND	ND
Total HxCDF	ND	ND	ND

Sample ID	LAG-1	LAG-2	LAG-3
Sample Collection Date	9/9/2008	9/9/2008	9/9/2008
Other Parameters (mg/L)			
TSS	**110**	**74**	**120**
COD	**1500**	**1400**	**1500**
BOD	**270**	**280**	**250**
Phosphorus	**0.52**	**0.59**	**0.49**
Phenolics, Total Recoverable	**0.44**	**0.7**	**0.39**
Nitrogen, Total	**10**	**11**	**10**
Reactive Cyanide & Sulfide (mg/Kg)			
Cyanide, Reactive	[illegible]	[illegible]	[illegible]
Sulfide, Reactive	[illegible]	[illegible]	[illegible]
pH (SU)	7.17 H	7 H	6.83 H
Flashpoint (Degrees F)	>140	>140	>140

Notes:
ug/L = micrograms per liter
mg/L = milligrams per liter
ng/L = nanograms per liter
mg/kg = milligrams per kilogram
U = Indicates the analyte was analyzed for but not detected
J = Result is less than the reporting limit but greater than or equal to the MDL and the concentration is an approximate value
B = Compound was found in the blank and sample
T = Result is a tentatively identified compound and an estimated value
N = This flag indicates the presumptive evidence of a compound
H = Sample was prepped or analyzed beyond the specified holding time
ND = Not Detected
SU = Standard Units
F = Fahrenheit

Sauer,Mark

From: Catherine Warner [CWarner@gesonline.com]
Sent: Monday, October 06, 2008 4:57 PM
To: Sauer,Mark
Cc: AChapman@herc.com; Joseph Keller; Erin Wright
Subject: RE: Request for Discharge

Mark,

There is about 1.5 million gallons of water estimated to be in the Lagoon. There will also be stormwater added if any significant events occur in the near future.

While I am not sure of the pumps that the contractor will be using, if we empty the Lagoon at 50 gpm it would take about 20 days to empty the water from the Lagoon. Any additional rainwater would be extra time. We would like to start as soon as possible.

We appreciate you help in this matter and look forward to receiving the discharge limits.

Cathy

From: Sauer,Mark [mailto:mhsauer@deq.virginia.gov]
Sent: Friday, October 03, 2008 7:54 AM
To: Catherine Warner
Subject: RE: Request for Discharge

Cathy –

I have very briefly looked at your request. I have not really looked at the analytical results yet. On my initial review, I have one question, and one comment. The question is, when would the discharge start and how long would you anticipate the duration of the discharge to be? The initial comment I have is that any discharge through 002 will need to meet ALL permit limitations for outfalls 201 and 002, including WET limits, and we would require sampling in accordance with the permit. The discharge(s) also must meet all instream water quality standards. I will be reviewing the analytical data you sent with the request and will be comparing that against our standards to identify any parameters that may be a concern. It may be that some kind of on-site treatment be necessary before discharging in order to meet all applicable standards. I'll know more about that once I look carefully at all the data. I'll be working on this today and early next week and should have some information for you by the middle of next week. Thank you.

From: Catherine Warner [mailto:CWarner@gesonline.com]
Sent: Thursday, October 02, 2008 4:26 PM
To: Sauer,Mark
Cc: Barbara Smith; Joseph Keller; AChapman@herc.com; BHough1@Herc.com; Meeks, Edward D.
Subject: Request for Discharge

Mark,

Per our conversation on Monday, attached is a formal request to discharge the Lagoon water from the Hercules Facility in Franklin, Virginia through Outfall 002. I have also attached a summary of the analytical results for the Lagoon water. I can provide the laboratory certificates if you are interested.

Your help in this matter is appreciated.

Cathy

Sample ID	LAG-1	LAG-2	LAG-3
Sample Collection Date	9/9/2008	9/9/2008	9/9/2008
Appendix IX Volatile Organic Compounds (ug/L)			
Acetone	**190**	**140**	**210**
Acetonitrile	40 U	40 U	40 U
Acrolein	20 U	20 U	20 U
Acrylonitrile	20 U	20 U	20 U
Benzene	**1.3**	**1.7**	**0.68 J**
Bromodichloromethane	1 U	1 U	1 U
Bromoform	1 U	1 U	1 U
Bromomethane	1 U	1 U	1 U
Methyl Ethyl Ketone	**19**	**20**	**21**
Carbon disulfide	**1.4 J**	**0.64 J**	**1.4 J**
Carbon tetrachloride	1 U	1 U	1 U
Chlorobenzene	1 U	1 U	1 U
Chloroethane	1 U	1 U	1 U
Chloroform	1 U	1 U	1 U
Chloromethane	**0.6 J**	1 U	1 U
Chloroprene	1 U	1 U	1 U
3-Chloropropene	1 U	1 U	1 U
Dibromochloromethane	1 U	1 U	1 U
1,2-Dibromo-3-Chloropropane	1 U	1 U	1 U
1,2-Dibromoethane	1 U	1 U	1 U
Dibromomethane	1 U	1 U	1 U
trans-1,4-Dichloro-2-butene	2 U	2 U	2 U
Dichlorodifluoromethane	1 U	1 U	1 U
1,1-Dichloroethane	1 U	1 U	1 U
1,2-Dichloroethane	1 U	1 U	1 U
1,1-Dichloroethene	1 U	1 U	1 U
cis-1,2-Dichloroethene	1 U	1 U	1 U
trans-1,2-Dichloroethene	1 U	1 U	1 U
1,2-Dichloropropane	1 U	**0.5 J**	1 U
cis-1,3-Dichloropropene	1 U	1 U	1 U
trans-1,3-Dichloropropene	1 U	1 U	1 U
Ethylbenzene	1 U	1 U	1 U
Ethyl methacrylate	1 U	1 U	1 U
Heptane	**5.1**	**4.7**	**5.1**
2-Hexanone	**2.2 J**	**3.5 J**	**2.9 J**
Iodomethane	5 U	5 U	5 U
Isobutyl alcohol	40 U	40 U	40 U
Methacrylonitrile	20 U	20 U	20 U
Methylene Chloride	5 U	5 U	5 U
Methyl methacrylate	1 U	1 U	1 U
methyl isobutyl ketone	**0.81 J**	10 U	10 U
Methyl tert-butyl ether	10 U	10 U	10 U
Pentachloroethane	5 U	5 U	5 U
Propionitrile	20 U	20 U	20 U
Styrene	1 U	1 U	1 U
1,1,1,2-Tetrachloroethane	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	1 U	1 U	1 U
Tetrachloroethene	1 U	1 U	1 U
Toluene	**3.0**	**4.5**	**2.2**
1,1,1-Trichloroethane	1 U	1 U	1 U
1,1,2-Trichloroethane	1 U	1 U	1 U
Trichloroethene	1 U	1 U	1 U
Trichlorofluoromethane	1 U	1 U	1 U
1,2,3-Trichlorobenzene	1 U	1 U	1 U
1,2,3-Trichloropropane	1 U	1 U	1 U
Vinyl acetate	2 U	2 U	2 U
Vinyl chloride	1 U	1 U	1 U
Xylenes, Total	**5.1**	**4.1**	**4.7**
Tentatively Identified Compounds (ug/L)			
Total Unknown Compounds	**216.8 T J N**	**365.7 T J N**	**183.8 T J N**
Appendix IX Semivolatile Organic Compounds (ug/L)			
Acenaphthene	97 U	94 U	94 U
Acenaphthylene	97 U	94 U	94 U
Acetophenone	97 U	94 U	94 U
2-Acetylaminofluorene	97 U	94 U	94 U
alpha-Pinene	97 U	94 U	94 U
4-Aminobiphenyl	97 U	94 U	94 U
Aniline	190 U	190 U	190 U
Anthracene	97 U	94 U	94 U
Aramite, Total	97 U	94 U	94 U
Benzo[a]anthracene	97 U	94 U	94 U
Benzo[b]fluoranthene	97 U	94 U	94 U
Benzo[k]fluoranthene	97 U	94 U	94 U
Benzo[g,h,i]perylene	97 U	94 U	94 U
Benzo[a]pyrene	97 U	94 U	94 U
Benzyl alcohol	97 U	94 U	94 U
Biphenyl	97 U	94 U	94 U
Bis(2-chloroethoxy)methane	97 U	94 U	94 U
Bis(2-chloroethyl)ether	97 U	94 U	94 U
bis(chloroisopropyl) ether	97 U	94 U	94 U

Sample ID	LAG-1	LAG-2	LAG-3
Sample Collection Date	9/9/2008	9/9/2008	9/9/2008
Appendix IX Semivolatile Organic Compounds (ug/L), cont.			
Bis(2-ethylhexyl) phthalate	97 U	94 U	94 U
4-Bromophenyl phenyl ether	97 U	94 U	94 U
Butyl benzyl phthalate	97 U	94 U	94 U
4-Chloroaniline	190 U	190 U	190 U
4-Chloro-3-methylphenol	97 U	94 U	94 U
2-Chloronaphthalene	97 U	94 U	94 U
2-Chlorophenol	97 U	94 U	94 U
4-Chlorophenyl phenyl ether	97 U	94 U	94 U
Chrysene	97 U	94 U	94 U
m & p - Cresol	**97**	**150**	**97**
o-Cresol	97 U	94 U	94 U
Diallate	97 U	94 U	94 U
Dibenz(a,h)anthracene	97 U	94 U	94 U
Dibenzofuran	97 U	94 U	94 U
Di-n-butyl phthalate	97 U	94 U	94 U
1,2-Dichlorobenzene	97 U	94 U	94 U
1,3-Dichlorobenzene	97 U	94 U	94 U
1,4-Dichlorobenzene	97 U	94 U	94 U
3,3'-Dichlorobenzidine	190 U	190 U	190 U
2,4-Dichlorophenol	97 U	94 U	94 U
2,6-Dichlorophenol	97 U	94 U	94 U
Diethyl phthalate	97 U	94 U	94 U
Dimethoate	97 U	94 U	94 U
p-Dimethylamino azobenzene	97 U	94 U	94 U
7,12-Dimethylbenz(a)anthracene	97 U	94 U	94 U
3,3'-Dimethylbenzidine	190 U	190 U	190 U
alpha,alpha-Dimethyl phenethylamine	1900 U	1900 U	1900 U
2,4-Dimethylphenol	97 U	94 U	94 U
Dimethyl phthalate	97 U	94 U	94 U
m-Dinitrobenzene	97 U	94 U	94 U
4,6-Dinitro-2-methylphenol	490 U	470 U	470 U
2,4-Dinitrophenol	490 U	470 U	470 U
2,4-Dinitrotoluene	97 U	94 U	94 U
2,6-Dinitrotoluene	97 U	94 U	94 U
Dinoseb	97 U	94 U	94 U
Di-n-octyl phthalate	97 U	94 U	94 U
1,4-Dioxane	97 U	94 U	94 U
Diphenyl ether	**18 J**	**20 J**	**25 J**
Disulfoton	97 U	94 U	94 U
Ethyl methanesulfonate	97 U	94 U	94 U
Parathion	97 U	94 U	94 U
Famphur	97 U	94 U	94 U
Fluoranthene	97 U	94 U	94 U
Fluorene	97 U	94 U	94 U
Hexachlorobenzene	97 U	94 U	94 U
Hexachlorobutadiene	97 U	94 U	94 U
Hexachlorocyclopentadiene	97 U	94 U	94 U
Hexachloroethane	97 U	94 U	94 U
Hexachlorophene	4900 U	4700 U	4700 U
Hexachloropropene	97 U	94 U	94 U
Indeno[1,2,3-cd]pyrene	97 U	94 U	94 U
Isophorone	97 U	94 U	94 U
Isosafrole	97 U	94 U	94 U
Methapyrilene	1900 U	1900 U	1900 U
3-Methylcholanthrene	97 U	94 U	94 U
Methyl methanesulfonate	97 U	94 U	94 U
2-Methylnaphthalene	97 U	94 U	94 U
Methyl parathion	97 U	94 U	94 U
Naphthalene	97 U	94 U	94 U
1,4-Naphthoquinone	97 U	94 U	94 U
1-Naphthylamine	97 U	94 U	94 U
2-Naphthylamine	97 U	94 U	94 U
2-Nitroaniline	490 U	470 U	470 U
3-Nitroaniline	490 U	470 U	470 U
4-Nitroaniline	490 U	470 U	470 U
Nitrobenzene	97 U	94 U	94 U
2-Nitrophenol	97 U	94 U	94 U
4-Nitrophenol	490 U	470 U	470 U
4-Nitroquinoline-1-oxide	190 U	190 U	190 U
N-Nitrosodi-n-butylamine	97 U	94 U	94 U
N-Nitrosodiethylamine	97 U	94 U	94 U
N-Nitrosodimethylamine	97 U	94 U	94 U
N-Nitrosodiphenylamine	97 U	94 U	94 U
N-Nitrosodi-n-propylamine	97 U	94 U	94 U
N-Nitrosomethylethylamine	97 U	94 U	94 U
N-Nitrosomorpholine	97 U	94 U	94 U
N-Nitrosopiperidine	97 U	94 U	94 U
N-Nitrosopyrrolidine	97 U	94 U	94 U
N-Nitro-o-toluidine	97 U	94 U	94 U

Sauer,Mark

From: Sauer,Mark
Sent: Friday, October 03, 2008 8:03 AM
To: 'Catherine Warner'
Subject: RE: Request for Discharge

Cathy –

One other item to note; I am currently working on a modification of the Hercules permit, which will include recalculating the BOD and TSS technology limits for outfall 201 based on reduced production with the deletion of tall oil product. This will significantly lower the BOD and TSS limits at 201, on the order of reducing the limits by just over 50%; the discharges from the waste lagoons will have to meet these revised limits.

From: Catherine Warner [mailto:CWarner@gesonline.com]
Sent: Thursday, October 02, 2008 4:26 PM
To: Sauer,Mark
Cc: Barbara Smith; Joseph Keller; AChapman@herc.com; BHough1@Herc.com; Meeks, Edward D.
Subject: Request for Discharge

Mark,

Per our conversation on Monday, attached is a formal request to discharge the Lagoon water from the Hercules Facility in Franklin, Virginia through Outfall 002. I have also attached a summary of the analytical results for the Lagoon water. I can provide the laboratory certificates if you are interested.

Your help in this matter is appreciated.

Cathy

PLEASE NOTE MY NEW PHONE NUMBER AND EXTENSION

Catherine C. Warner, P.E., D.D.E.
Groundwater & Environmental Services, Inc
23 South 13th Street
Richmond, Virginia 23219
866-222-7786 ext. 3770
cwarner@gesonline.com

Region 3 GPRA Baseline RCRA Corrective Action Facility

Hercules Incorporated

27123 Shady Brook Trail
Courtland, VA 23837-2034
Congressional District 4
EPA ID #: VAD003122165
Last Updated: 06/19/2008

Current Progress at the Site

On October 28, 1999, Hercules entered into an EPA Region III Facility-Lead Agreement (Agreement) under RCRA, and agreed to conduct environmental investigations at the facility and perform remediation, to meet the RCRA Corrective Action Goals. This facility is an EPA High Priority RCRA Corrective Action site.

Hercules completed most of the site characterization as well as remediation of several solid waste management units. The first phase of site characterization and limited remediation is documented in a Release Assessment (ERM; March 1999) and the second phase of site characterization is documented in a Release Assessment Addendum (GES; January 2002). The Facility submitted its annual reports as required under the October 1999 Agreement and provided a schedule of additional work. Groundwater remediation in the Vulcup area is on-going. An investigation into possible sources of groundwater contamination beneath the Vulcup area was submitted and approved by EPA in June 2007 and source investigation work is almost finished.

EPA approved the March 2003 Quality Assurance Project Plan for future site investigations. EPA also approved sampling plans for four additional focused investigations. Hercules made progress in assessing site contamination, as documented in the Release Assessment and Addendum. Hercules completed groundwater sampling of private wells located around the facility and found no site-related compounds. Hercules met the environmental indicator for human health exposures under control in September 2004. In 2008, EPA and Hercules will evaluate the site characterization data to determine if Groundwater Releases at the facility are controlled. The groundwater investigation in the Vulcup unit continues. The investigations should locate any sources of ground water contamination. The Remedial Plans for the West Area are scheduled to start in 2008. EPA approved the concept design in June 2008.

Site Description

The Hercules Franklin, Virginia facility encompasses 120 acres, with about 30 acres developed, at the intersection of Routes 671 and 650 in Franklin, Virginia. Since 1955, the facility has been a chemical processing plant primarily producing rosin, fatty acids and organic peroxides. The primary raw material used at the facility is Tall Oil derived from the wood pulping industry. Historically, it has managed wastes in on-site landfills, a spray field, lagoons and pits, however discontinued these waste disposal methods. The current processes generate wastewater, non-contact cooling water, biological sludge and small quantities of spent solvents from the on-site quality control laboratory. Recently, the wastewater treatment plant was upgraded and produces little sludge, which is shipped off-site, under VADEQ permit. The lagoon and sprayfield are no

longer used, and are scheduled for closure under RCRA Corrective Action.
In 2001, Hercules sold two of the three business units that operate at the facility while maintaining ownership of the facility property. The resins business was sold to Eastman Chemical Resins, Inc. and the organic peroxides business was sold to GEO Specialty Chemical Company. Hercules retained the Aqualon business and responsibility for past site releases.

Site Responsibility

RCRA Corrective Action activities at this facility are being conducted under the direction of the U.S. Environmental Protection Agency, Region III, Philadelphia, PA.

Contaminants

The site characterization data indicate that onsite soil and groundwater contain 1,2 - dichloropropane (PDC), benzene, acetone, heptane, phenols, petroleum hydrocarbons and polynuclear aromatic hydrocarbons.

Community Interaction

The Facility has developed a community relations plan that is a part of the Agreement. Public participation is included as appropriate.

Institutional Controls

No institutional controls are currently in place.

Government Contacts

Barbara Smith
U.S. EPA - Region III
1650 Arch Street (3LC20)
Philadelphia, PA 19103-2029
Phone: (215) 814-5786
Email: smith.barbara@epa.gov

Richard Criqui
Virginia Department of Environmental Quality
P.O. Box 10009
Richmond, VA 23240-0009
Email: rjcriqui@deq.virginia.gov

For more information about EPA's corrective action webpage, including Environmental Indicators, please visit our site at: www.epa.gov/reg3wcmd/correctiveaction.htm

Facility Contact

Mr Roy Hart
Hercules Incorporated
Pulp and Paper Division
27123 Shady Brook Trail
Courtland, VA 23837-2034
Phone: (757) 562-3121 Ext. 176

Mr. Bruce Hough, Dir.
Hercules Incorporated - SHERA
Research Center – Bldg. 8139/16
500 Hercules Road
Wilmington, DE 19808-1599
Phone: (302) 995-3404

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
TIDEWATER REGIONAL OFFICE
5636 Southern Boulevard, Virginia Beach, Virginia 23462
(757) 518-2000 Fax (757) 518-2103
www.deq.virginia.gov

L. Preston Bryant, Jr
Secretary of Natural Resources

David K. Paylor
Director

Francis L. Daniel
Regional Director

October 8, 2008

Ms. Catherine C. Warner
Regional Manager
GES
23 South 13th Street, Suite 201
Richmond, VA 23219

Re: VPDES Permit Number VA0003433; Hercules, Incorporated
Wastewater Lagoon and Sludge Pit Water Discharge Request

Dear Ms. Warner;

I have reviewed your letter of October 2, 2008 requesting to discharge wastewater from the wastewater holding lagoon and the waste pit through VPDES outfall 002. This letter will address only the water from the wastewater lagoon as only analytical data from that lagoon is currently available for review. Once I receive analytical results from the sludge pit water, I will address that in a separate letter.

This wastewater is not addressed in the current VPDES permit and we do not intend to modify the permit to address this short-term discharge. If GES and/or Hercules determines that there is a need to discharge the water from this project to State waters, it will be considered a non-permitted discharge through a permitted outfall and will be done at the owner's and/or operator's own risk. The owner and/or operator will be responsible for remediating any environmental impacts or pollution complaints that are realized from this discharge.

Based on the data submitted and your request to discharge this water, the wastewater in the holding pond appears to be similar in nature to effluent from the facility and can be discharged through permitted internal outfall 201and then to outfall 002. Since these are both permitted outfalls, the effluent must meet all effluent limitations for outfall 002 and all effluent limitations for outfall 201. It is the decision of the owner and/or operator whether to send the wastewater through the treatment plant prior to sending it to outfall 201, but the wastewater must discharge through outfall 201 and outfall 002. The applicable effluent limitations for each outfall will apply at the respective outfall sampling location. In addition, based on review of the data and comparison to water quality standards and 40 CFR limitations from similar point source categories, additional effluent limitations must be met at outfall 002 in order to discharge this wastewater from a permitted outfall at the facility. While these additional limits are not enforceable VPDES permit limits, an exceedance of these limits may contravene numerical water quality standards or impact the receiving stream, causing a violation of the general water quality standard. All applicable limits are presented in Tables 1 and 2. Table 1 lists a summary of applicable and enforceable VPDES permit limits for outfalls 201 and 002. Please reference the complete VPDES permit for all monitoring requirements and special conditions applicable to these outfalls. Table 2 lists other limitations that if exceeded may contravene Virginia Water Quality Standards. Please note that based on the anticipated discharge duration of approximately 20 days, at least one sample for every parameter in Table 1 and Table 2 shall be collected during the duration of this discharge. The parameters in Table 1 shall be sampled and

reported on the Discharge Monitoring Report (DMR) for outfalls 201 and 002. The parameters in Table 2 shall be sampled at outfall 002 at least one time during the discharge event and reported as an attachment to the DMR.

Table 1. VPDES Permit VA0003433 Effluent Limitations – Outfalls 201 and 002.

Outfall 201

EFFLUENT CHARACTERISTICS [a]	DISCHARGE LIMITATIONS			
	Monthly Average		Maximum	
BOD_5 (mg/l; lb/d)	438	493.76	825	929.04
Total Suspended Solids (mg/l; lb/d)	172	193.95	500	562.86

[a] Outfall 201 shall be sampled from the combined waste basin (small weir) prior to mixing with other non-process flow.

Outfall 002

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS			
	Monthly Average		Minimum	Maximum
pH (S.U.)	NA		6.0	9.0
Temperature (°C)	NA		NA	30
Total Phosphorus (mg/l; lb/d)	2.0	97	NA	NL
Total Recoverable Copper (ug/)	NL		NA	52
Hexavalent Chromium (ug/l)	NL		NA	16
Acute WET (TU_a)	NA		NA	1.0
Chronic WET (TU_c)	NA		NA	6.25

Table 2. Applicable Wastewater Discharge Limitations Not To Be Exceeded. To Be Sampled at Outfall 002.

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS	
	Monthly Average	Maximum
Total Petroleum Hydrocarbons (DRO and GRO) (mg/l)	NA	30
Total Recoverable Arsenic (ug/l)	NA	150
Total Recoverable Cadmium (ug/l)	NA	1.0
Total Recoverable Nickel (ug/)	NA	20
Total Recoverable Zinc (ug/l)	NA	29
Cyanide (ug/l)	NA	5.2
Alpha Terpinol (ug/l)	NA	16
p Cresol (ug/l)	NA	14
Phenol (ug/l)	NA	15
Benzene (ug/l)	NA	50
Toluene (ug/l)	NA	175

Please note that this letter does not relieve the owner and/or operator from complying with any and all other applicable federal, state and local regulations. If you have any questions, or need additional information, please feel free to contact me at the above address, by e-mail at mhsauer@deq.virginia.gov or by telephone at (757) 518-2105.

Sincerely,

Mark H. Sauer
Permit Engineer

Cc: TRO file

HERCULES

PAPER TECHNOLOGIES AND VENTURES

Hercules Incorporated
27123 Shady Brook Trail
Courtland, VA 23837-2034
Tel: (757) 562-3121

www.herc.com

CERTIFIED MAIL 7004 1350 003 2436 2338

October 13, 2008

Mr. Mark Sauer
Virginia Department of Environmental Quality
5636 Southern Boulevard
Virginia Beach, Virginia 23462

Re: VPDES Permit Renewal
Hercules Incorporated, Franklin, Virginia
Permit # VA0003433

Dear Mr. Sauer,

As you know, Eastman Chemical Company is in the process of shutting down the Tall Oil process area at the Hercules Incorporated facility in Franklin, Virginia. This document is to provide you with revised information for the Virginia Pollution Discharge Elimination System (VPDES) permit renewal that is currently underway.

1. The average flow from Outfall 201 will be decreased due to the elimination of the Tall Oil process wastewater. A revised Form 2C is attached. For Section II.B., the estimated flow from NC1, NC2 and NC3 are based on the most recent groundwater withdrawal permit submittal. Lastly, in Section III.C., a discussion with Eastman personnel resulted in changes to this section that are believed to better describe that operation.

2. The VPDES permit will still be 'owned' by Hercules Incorporated. There is no change necessary to the permit application.

3. As a result of the 2005 EPA multi-media inspection, there are three identified stormwater outfalls that we are requesting be added to the permit. A revised Form 2F and Attachment 3 Figure are attached. The new outfalls have been labeled A, B, and C, pending official names from VADEQ. All of these outfalls are on the east side of the Facility and discharge to Wills Gut. The potential exposure from these outfalls is from the same process area but with significantly less exposure potential than existing Stormwater Outfall 003. Therefore, we request that the existing monitoring plan for Outfall 003 be considered representative of the new outfalls A, B and C.

4. As discussed with Deanna Austin of VADEQ, we are requesting that the following language be added to the toxicity testing section of the permit to allow for UV treated test media. Specifically, we are requesting that Part I B 2 b add the following sentence after the first paragraph:

" Prior to use in the chronic toxicity test, effluent samples may be UV-irradiated by 8 W for 1.5 hours per 3.4 L sample. The UV-irradiation will be reported on the toxicity test results."

5. Temperature study – we request a meeting to discuss the previous mixing zone study and coordination with future temperature study requirements.

We appreciate your consideration for these revisions to the VPDES application. Please let me know if you have any questions and we look forward to hearing from you.

Sincerely,

Andrew B. Chapman

Cc: Chris Moniz – Hercules

VPDES Permit Renewal Meeting
Hercules Incorporated, Franklin, Virginia

Wednesday, December 17, 2008
11 AM DEQ Tidewater Regional Office

OBJECTIVES

1. Discuss status of the VPDES permit renewal.
2. Identify path(s) moving forward.

AGENDA

I. Introductions and Agenda Overview

II. West Area Lagoon/Sludge Pit Water
   A. Project Overview/Schedule
   B. Permit Application Revision — include West Area lagoon Dewatering

III. Temperature Study
   A. Existing Mixing Zone Study
   B. Temperature Study
   C. Proposed Future Activities

New Study - Review @ A later Date

IV. Aquapel Effluent Limit Guidelines Subcategory
   A. Existing 40 CFR 454.11 Subpart F – Rosin Based Derivatives Subcategory
   B. Proposed 40 CFR 454.11 Subpart C – Wood Rosin, Turpentine and Pine Oil Subcategory

Look @ Going From F to C.

V. Schedule

Sauer,Mark

From: warnerc@comcast.net
Sent: Wednesday, April 22, 2009 11:08 AM
To: Sauer,Mark
Cc: Sean Maconaghy
Subject: Hercules Ashland VPDES Permitting
Attachments: VPDES Request 4-09.pdf; Development Document Gum and Wood Chemicals.pdf; Aquapel Process Diagram 010809.pdf

Mark,

I have attached a letter requesting an effluent limits guidelines subcategory change for the Hercules Ashland Water Technologies Facility in Franklin, Virginia. A paper copy is following in the mail.

I am no longer with GES, my new contact information is:

warnerc@comcast.net
804-514-6365

I appreciate your review of this information. Please let me know if you have any questions.

Sincerely,

Cathy

Catherine C. Warner, P.E., D.E.E.
warnerc@comcast.net
804-514-6365

Arrowhead Environmental Services
P.O. Box 217
Windsor, VA 23487
(757) 242-3174 Facsimile
www.arrowheadenvironmental.com

April 20, 2009

Mr. Mark Sauer
Virginia Department of Environmental Quality
5636 Southern Boulevard
Virginia Beach, VA 23462

Re: VPDES Permit Renewal
Ashland Hercules Water Technologies
Franklin, Virginia
VA0003433

Dear Mr. Sauer,

The purpose of this letter is to request that the Aquapel effluent limit guidelines subcategory for the Ashland Hercules Water Technologies Virginia Pollution Discharge Elimination System (VPDES) permit for the facility in Franklin, Virginia be revised to more accurately reflect the manufacturing process. As we discussed in our December 17, 2008 meeting, a review of the Development Document for Proposed Effluent Limitations Guidelines, New Source Performance Standards, and Pretreatment Standards for the Gum and Wood Chemicals Point Source Category (December 1979) has lead to this request. A copy of pertinent pages from the development document is attached to this request.

The Aquapel process involves the following general steps.

1. Batch reaction of fatty acid (animal, vegetable or wood based) via chlorination to produce fatty acid chloride and co-products of hydrochloric acid and phosphorous acid.
2. Extraction in a series of tanks of the co-product acids from the fatty acid chloride to produce a purified fatty acid chloride.
3. The purified fatty acid chloride is reacted in a second series of reactors with triethylamine (TEA) using propylene dichloride (PDC) as a solvent to produce the raw product of alkyl ketene dimer (Aquapel).
4. The raw product is purified via a centrifuge and series of stills (multi-stage distillation). Once distilled, the dimer is sent to packaging as a final product.
5. The co-product acids are purified via separation and filtration and sold as reusable products. A portion of the hydrochloric acid is used for neutralization of caustic wastewaters from the solvent recovery process.
6. The TEA and PDC mixture is sent to solvent recovery which is a batch distillation process with condensers and separation equipment to recovery the materials for reuse in the process. A portion of the condensed solvent is refluxed back to the distillation columns.

A copy of the flow diagram for Aquapel is attached. A majority of the wastewater produced in Aquapel is from the solvent recovery process.

The current effluent limit guidelines subcategory for the Aquapel process is Subpart F – Rosin Based Derivatives. As can be seen in the attached Development Document, the rosin derivative process is produced when stump wood rosin and glycerin are reacted under vacuum conditions followed by a steam sparge to remove impurities. The impurities are sent through a scrubber and wastewater is produced from the separator after the scrubber. Additional wastewater is also produced from vessel wash down. A description of this process is presented on Page 37 and the flow diagram is presented in Figure III-5 (Page 38) of the attached Development Document.

The Aquapel process is different from the Rosin Based Derivatives process for the following reasons.

1. The Rosin Based Derivatives process does not have any solvent recovery distillation process (as outlined in item 6 above).
2. There is no raw production purification in the Rosin Based Derivatives process (as outlined in item 4 above).
3. The Rosin Based Derivatives process consists of a two step process which is a very simple process as outlined in the Development Document. The Aquapel process is more complicated and contains many more processes to produce the final product.
4. As mentioned previously, the majority of wastewater produced by Aquapel is from the solvent recovery process, which is not present in the Rosin Based Derivatives process.

Because the Rosin Based Derivatives process is not similar to Aquapel, the Development Document was reviewed to select the process most representative of the Aquapel process. The Wood Rosin, Turpentine and Pine Oil process (Subpart C) was selected as being most similar to the Aquapel process. The detailed description of this process is presented on Pages 30 and 33 and the flow diagram is presented in Figure III-2 (Page 32) of the Development Document. In this process, pine stumps are washed and chipped. The chips are then put through an azeotropic distillation process to remove water, reacted with a solvent to extract the resinous material and purified through distillation columns to separate the solvent from the final product. The solvent is then sent through a solvent recovery process to be reused.

The Wood Rosin, Turpentine and Pine Oil process (Subpart C) is most similar to Aquapel for the following reasons.

1. There is solvent extraction, recovery and reuse in both processes. The solvent recovery process is the major producer of wastewater in Aquapel.
2. Both solvent recovery processes are azeotropic distillation with like solvents.
3. Both processes use the same distillation approach to recover solvent downstream of the condenser with separation equipment and reflux a portion of the condensed solvent back into the distillation process.

4. The wood based fatty acid used as a raw material in Aquapel is similar to the rosin extracted from the stumps in the first stages of the Wood Rosin, Turpentine and Pine Oil process. Because they have similar physical properties they will behave similar in the wastewater stream.

Therefore, because the Aquapel process is not similar to the Subpart F – Rosin Based Derivatives process and is similar to the Subpart C – Wood Rosin, Turpentine and Pine Oil process, this request is for the Aquapel process to be subject to Subpart C – Wood Rosin, Turpentine and Pine Oil effluent limitations which are as follows.

	Effluent Limitations	
Effluent Characteristic	Maximum for any 1 day (lb/1000 lb of product)	Average of daily values for 30 consecutive days shall not exceed (lb/1000 lb of product)
BOD_5	2.08	1.10
TSS	1.38	0.475
pH	6.0 to 9.0	6.0 to 9.0

Anti-Backsliding Evaluation

In 9 VAC-25-31-220.L.2 the regulations allow for permits to be reissued with less stringent effluent limitations as long as certain exceptions are met. This evaluation meets the exception requirements for the following two reasons.

1. b(1) - "Information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance". The new information that is available is the detailed process information provided in this letter.
2. In the 1996 to 1998 timeframe there was a major modification of the Aquapel process to improve the quality of the final product. The multi-stage product distillation and improved solvent recovery processes were added. Therefore exception a. "Material and substantial alterations or additions to the permitted facility occurred after the permit issuance which justify the application of a less stringent effluent limitation" applies.

Using the information presented in this letter, Ashland Hercules Water Technologies is respectfully requesting a change in the effluent limits for the Aquapel process to the Subpart C – Wood Rosin, Turpentine and Pine Oil category. We are available to provide further information and clarification, if necessary.

We appreciate your consideration of this request for revised effluent limits. Please let me know if you have any questions (804-514-6365).

Sincerely,

Catherine C. Warner, P.E., D.E.E.

Attachments: Development Document for Proposed Effluent Limitations Guidelines, New Source Performance Standards, and Pretreatment Standards for the Gum and Wood Chemicals Point Source Category (December 1979)

Aquapel Process Flow Diagram – Confidential Business Information

cc: Sean Maconaghy – Ashland Hercules Water Technologies

ONE Environmental Group

June 12, 2009

Mr. Mark Sauer
Virginia Department of Environmental Quality
5636 Southern Boulevard
Virginia Beach, VA 23462

Re: VPDES Permit Renewal
Ashland Hercules Water Technologies
Franklin, Virginia
VA0003433

Dear Mr. Sauer,

The purpose of this letter is to request that the Virginia Pollution Discharge Elimination System (VPDES) permit for the Ashland Hercules Water Technologies Facility in Franklin, Virginia be revised to add wastewater holding lagoon (lagoon) and sludge pit remediation water to be discharged through Outfall 002. This request was originally made in a letter dated October 2, 2008 and granted in your letter dated October 8, 2008. This request is to add the discharge to the renewed permit.

The Facility is currently operating under a Facility Lead Corrective Action Agreement with the Environmental Protection Agency (EPA). Through this regulatory program, the Facility will remediate the lagoon and sludge pits. The lagoon is currently holding water and the sludge pits have entrained water within the sludge. In addition, during the remediation of these units, rainwater and potentially groundwater will need to be removed and discharged. The analytical data for the lagoon and sludge pit water is attached.

The modified Form 2C to include the lagoon and sludge pit remediation water is attached. The discharge is listed as through 201 to 002 or directly to 002. The plan is to provide the discharge limits and analytical testing requirements to the remediation contractor and have the contractor propose a plan for treatment. The proposed treatment plan will be reviewed by the Facility to ensure that the discharge limits will be met. It is anticipated that the water will go through a mobile treatment unit prior to discharge. Another possibility is to treat the water through the existing wastewater treatment plant. However, the treatment plant is operated by Eastman and the remediation is being conducted by Ashland. Therefore, the existing treatment plant may not be an option.

We appreciate your consideration of this request to add remediation water to the discharge permit. We look forward to your response. Please let me know if you have any questions (804-514-6365).

Sincerely,

Catherine C Warner

Catherine C. Warner, P.E., D.E.E.
Principal

Attachments: Lagoon and Sludge Pit Water Analytical
Revised Form 2C

cc: Sean Maconaghy – Ashland Hercules Water Technologies

Table 6
Lagoon Water and Sludge Pit Water Analytical Data
September 2008
West Area
Hercules Franklin Facility

Sample ID	Regulatory Limit	LAG-1	LAG-2	LAG-3	SPWW-1
Sample Collection Date		9/9/2008	9/9/2008	9/9/2008	9/29/2008
Appendix IX Volatile Organic Compounds (ug/L)					
Acetone		**190**	**140**	**210**	**650**
Acetonitrile		40 U	40 U	40 U	80 U
Acrolein		20 U	20 U	20 U	40 U
Acrylonitrile		20 U	20 U	20 U	40 U
Benzene	**50**	**1.3**	**1.7**	**0.68 J**	**23**
Bromodichloromethane		1 U	1 U	1 U	2 U
Bromoform		1 U	1 U	1 U	2 U
Bromomethane		1 U	1 U	1 U	2 U
Methyl Ethyl Ketone		**19**	**20**	**21**	**68**
Carbon disulfide		**1.4 J**	**0.64 J**	**1.4 J**	4 U
Carbon tetrachloride		1 U	1 U	1 U	2 U
Chlorobenzene		1 U	1 U	1 U	2 U
Chloroethane		1 U	1 U	1 U	2 U
Chloroform		1 U	1 U	1 U	2 U
Chloromethane		**0.6 J**	1 U	1 U	2 U
Chloroprene		1 U	1 U	1 U	2 U
3-Chloropropene		1 U	1 U	1 U	2 U
Dibromochloromethane		1 U	1 U	1 U	2 U
1,2-Dibromo-3-Chloropropane		1 U	1 U	1 U	2 U
1,2-Dibromoethane		1 U	1 U	1 U	2 U
Dibromomethane		1 U	1 U	1 U	2 U
trans-1,4-Dichloro-2-butene		2 U	2 U	2 U	4 U
Dichlorodifluoromethane		1 U	1 U	1 U	2 U
1,1-Dichloroethane		1 U	1 U	1 U	2 U
1,2-Dichloroethane		1 U	1 U	1 U	2 U
1,1-Dichloroethene		1 U	1 U	1 U	2 U
cis-1,2-Dichloroethene		1 U	1 U	1 U	2 U
trans-1,2-Dichloroethene		1 U	1 U	1 U	2 U
1,2-Dichloropropane		1 U	**0.5 J**	1 U	2 U
cis-1,3-Dichloropropene		1 U	1 U	1 U	2 U
trans-1,3-Dichloropropene		1 U	1 U	1 U	2 U
Ethylbenzene		1 U	1 U	1 U	**3**
Ethyl methacrylate		1 U	1 U	1 U	2 U
Heptane		**5.1**	**4.7**	**5.1**	2 U
2-Hexanone		**2.2 J**	**3.5 J**	**2.9 J**	**6.7 J**
Iodomethane		5 U	5 U	5 U	10 U
Isobutyl alcohol		40 U	40 U	40 U	80 U
Methacrylonitrile		20 U	20 U	20 U	40 U
Methylene Chloride					

Methyl methacrylate		1 U	1 U	1 U	2 U
methyl isobutyl ketone		**0.81 J**	10 U	10 U	**8.3 J**
Methyl tert-butyl ether		10 U	10 U	10 U	20 U
Pentachloroethane		5 U	5 U	5 U	10 U
Propionitrile		20 U	20 U	20 U	40 U
Styrene		1 U	1 U	1 U	**1.7 J**
1,1,1,2-Tetrachloroethane		1 U	1 U	1 U	2 U
1,1,2,2-Tetrachloroethane		1 U	1 U	1 U	2 U
Tetrachloroethene		1 U	1 U	1 U	2 U
Toluene	**175**	**3.0**	**4.5**	**2.2**	**33**
1,1,1-Trichloroethane		1 U	1 U	1 U	2 U
1,1,2-Trichloroethane		1 U	1 U	1 U	2 U
Trichloroethene		1 U	1 U	1 U	2 U
Trichlorofluoromethane		1 U	1 U	1 U	2 U
1,2,3-Trichlorobenzene		1 U	1 U	1 U	2 U
1,2,3-Trichloropropane		1 U	1 U	1 U	2 U
Vinyl acetate		2 U	2 U	2 U	4 U
Vinyl chloride		1 U	1 U	1 U	2 U
Xylenes, Total		**5.1**	**4.1**	**4.7**	**4.2**
Tentatively Identified Compounds (ug/L)					
Total Unknown Compounds		**216.8 T J N**	**365.7 T J N**	**183.8 T J N**	**650 T J N**
Appendix IX Semivolatile Organic Compounds (ug/L)					
Acenaphthene		97 U	94 U	94 U	47 U
Acenaphthylene		97 U	94 U	94 U	47 U
Acetophenone		97 U	94 U	94 U	47 U
2-Acetylaminofluorene		97 U	94 U	94 U	47 U
alpha-Pinene		97 U	94 U	94 U	47 U
4-Aminobiphenyl		97 U	94 U	94 U	47 U
Aniline		190 U	190 U	190 U	94 U
Anthracene		97 U	94 U	94 U	47 U
Aramite, Total		97 U	94 U	94 U	47 U
Benzo[a]anthracene		97 U	94 U	94 U	47 U
Benzo[b]fluoranthene		97 U	94 U	94 U	47 U
Benzo[k]fluoranthene		97 U	94 U	94 U	47 U
Benzo[g,h,i]perylene		97 U	94 U	94 U	47 U
Benzo[a]pyrene		97 U	94 U	94 U	47 U
Benzyl alcohol		97 U	94 U	94 U	47 U
Biphenyl		97 U	94 U	94 U	47 U
Bis(2-chloroethoxy)methane		97 U	94 U	94 U	47 U
Bis(2-chloroethyl)ether		97 U	94 U	94 U	47 U
bis(chloroisopropyl) ether		97 U	94 U	94 U	47 U

Methyl methacrylate		1 U	1 U	1 U	2 U
methyl isobutyl ketone		**0.81 J**	10 U	10 U	**8.3 J**
Methyl tert-butyl ether		10 U	10 U	10 U	20 U
Pentachloroethane		5 U	5 U	5 U	10 U
Propionitrile		20 U	20 U	20 U	40 U
Styrene		1 U	1 U	1 U	**1.7 J**
1,1,1,2-Tetrachloroethane		1 U	1 U	1 U	2 U
1,1,2,2-Tetrachloroethane		1 U	1 U	1 U	2 U
Tetrachloroethene		1 U	1 U	1 U	2 U
Toluene	175	**3.0**	**4.5**	**2.2**	**33**
1,1,1-Trichloroethane		1 U	1 U	1 U	2 U
1,1,2-Trichloroethane		1 U	1 U	1 U	2 U
Trichloroethene		1 U	1 U	1 U	2 U
Trichlorofluoromethane		1 U	1 U	1 U	2 U
1,2,3-Trichlorobenzene		1 U	1 U	1 U	2 U
1,2,3-Trichloropropane		1 U	1 U	1 U	2 U
Vinyl acetate		2 U	2 U	2 U	4 U
Vinyl chloride		1 U	1 U	1 U	2 U
Xylenes, Total		**5.1**	**4.1**	**4.7**	**4.2**
Tentatively Identified Compounds (ug/L)					
Total Unknown Compounds		**216.8 T J N**	**365.7 T J N**	**183.8 T J N**	**650 T J N**
Appendix IX Semivolatile Organic Compounds (ug/L)					
Acenaphthene		97 U	94 U	94 U	47 U
Acenaphthylene		97 U	94 U	94 U	47 U
Acetophenone		97 U	94 U	94 U	47 U
2-Acetylaminofluorene		97 U	94 U	94 U	47 U
alpha-Pinene		97 U	94 U	94 U	47 U
4-Aminobiphenyl		97 U	94 U	94 U	47 U
Aniline		190 U	190 U	190 U	94 U
Anthracene		97 U	94 U	94 U	47 U
Aramite, Total		97 U	94 U	94 U	47 U
Benzo[a]anthracene		97 U	94 U	94 U	47 U
Benzo[b]fluoranthene		97 U	94 U	94 U	47 U
Benzo[k]fluoranthene		97 U	94 U	94 U	47 U
Benzo[g,h,i]perylene		97 U	94 U	94 U	47 U
Benzo[a]pyrene		97 U	94 U	94 U	47 U
Benzyl alcohol		97 U	94 U	94 U	47 U
Biphenyl		97 U	94 U	94 U	47 U
Bis(2-chloroethoxy)methane		97 U	94 U	94 U	47 U
Bis(2-chloroethyl)ether		97 U	94 U	94 U	47 U
bis(chloroisopropyl) ether		97 U	94 U	94 U	47 U

Table 6
Lagoon Water and Sludge Pit Water Analytical Data
September 2008
West Area
Hercules Franklin Facility

Sample ID	Regulatory	LAG-1	LAG-2	LAG-3	SPWW-1
Sample Collection Date	Limit	9/9/2008	9/9/2008	9/9/2008	9/29/2008
Appendix IX Semivolatile Organic Compounds (ug/L), cont.					
Bis(2-ethylhexyl) phthalate		97 U	94 U	94 U	47 U
4-Bromophenyl phenyl ether		97 U	94 U	94 U	47 U
Butyl benzyl phthalate		97 U	94 U	94 U	47 U
4-Chloroaniline		190 U	190 U	190 U	94 U
4-Chloro-3-methylphenol		97 U	94 U	94 U	47 U
2-Chloronaphthalene		97 U	94 U	94 U	47 U
2-Chlorophenol		97 U	94 U	94 U	47 U
4-Chlorophenyl phenyl ether		97 U	94 U	94 U	47 U
Chrysene		97 U	94 U	94 U	47 U
m & p - Cresol	14	**97**	**150**	**97**	**200**
o-Cresol		97 U	94 U	94 U	**23 J**
Diallate		97 U	94 U	94 U	47 U
Dibenz(a,h)anthracene		97 U	94 U	94 U	47 U
Dibenzofuran		97 U	94 U	94 U	47 U
Di-n-butyl phthalate		97 U	94 U	94 U	47 U
1,2-Dichlorobenzene		97 U	94 U	94 U	47 U
1,3-Dichlorobenzene		97 U	94 U	94 U	47 U
1,4-Dichlorobenzene		97 U	94 U	94 U	47 U
3,3'-Dichlorobenzidine		190 U	190 U	190 U	94 U
2,4-Dichlorophenol		97 U	94 U	94 U	47 U
2,6-Dichlorophenol		97 U	94 U	94 U	47 U
Diethyl phthalate		97 U	94 U	94 U	47 U
Dimethoate		97 U	94 U	94 U	47 U
p-Dimethylamino azobenzene		97 U	94 U	94 U	47 U
7,12-Dimethylbenz(a)anthracene		97 U	94 U	94 U	47 U
3,3'-Dimethylbenzidine		190 U	190 U	190 U	94 U
alpha,alpha-Dimethyl phenethylamine		19000 U	19000 U	19000 U	9400 U
2,4-Dimethylphenol		97 U	94 U	94 U	47 U
Dimethyl phthalate		97 U	94 U	94 U	47 U
m-Dinitrobenzene		97 U	94 U	94 U	47 U
4,6-Dinitro-2-methylphenol		490 U	470 U	470 U	240 U
2,4-Dinitrophenol		490 U	470 U	470 U	240 U
2,4-Dinitrotoluene		97 U	94 U	94 U	47 U
2,6-Dinitrotoluene		97 U	94 U	94 U	47 U
Dinoseb		97 U	94 U	94 U	47 U
Di-n-octyl phthalate		97 U	94 U	94 U	47 U
1,4-Dioxane		97 U	94 U	94 U	47 U
Diphenyl ether		**18 J**	**20 J**	**25 J**	47 U

[illegible]		97 U	94 U	94 U	47 U
Parathion		97 U	94 U	94 U	47 U
Famphur		97 U	94 U	94 U	47 U
Fluoranthene		97 U	94 U	94 U	47 U
Fluorene		97 U	94 U	94 U	47 U
Hexachlorobenzene		97 U	94 U	94 U	47 U
Hexachlorobutadiene		97 U	94 U	94 U	47 U
Hexachlorocyclopentadiene		97 U	94 U	94 U	47 U
Hexachloroethane		97 U	94 U	94 U	47 U
Hexachlorophene		49000 U	47000 U	47000 U	24000 U
Hexachloropropene		97 U	94 U	94 U	47 U
Indeno[1,2,3-cd]pyrene		97 U	94 U	94 U	47 U
Isophorone		97 U	94 U	94 U	47 U
Isosafrole		97 U	94 U	94 U	47 U
Methapyrilene		19000 U	19000 U	19000 U	9400 U
3-Methylcholanthrene		97 U	94 U	94 U	47 U
Methyl methanesulfonate		97 U	94 U	94 U	47 U
2-Methylnaphthalene		97 U	94 U	94 U	47 U
Methyl parathion		97 U	94 U	94 U	47 U
Naphthalene		97 U	94 U	94 U	47 U
1,4-Naphthoquinone		97 U	94 U	94 U	47 U
1-Naphthylamine		97 U	94 U	94 U	47 U
2-Naphthylamine		97 U	94 U	94 U	47 U
2-Nitroaniline		490 U	470 U	470 U	240 U
3-Nitroaniline		490 U	470 U	470 U	240 U
4-Nitroaniline		490 U	470 U	470 U	240 U
Nitrobenzene		97 U	94 U	94 U	47 U
2-Nitrophenol		97 U	94 U	94 U	47 U
4-Nitrophenol		490 U	470 U	470 U	240 U
4-Nitroquinoline-1-oxide		190 U	190 U	190 U	94 U
N-Nitrosodi-n-butylamine		97 U	94 U	94 U	47 U
N-Nitrosodiethylamine		97 U	94 U	94 U	47 U
N-Nitrosodimethylamine		97 U	94 U	94 U	47 U
N-Nitrosodiphenylamine		97 U	94 U	94 U	47 U
N-Nitrosodi-n-propylamine		97 U	94 U	94 U	47 U
N-Nitrosomethylethylamine		97 U	94 U	94 U	47 U
N-Nitrosomorpholine		97 U	94 U	94 U	47 U
N-Nitrosopiperidine		97 U	94 U	94 U	47 U
N-Nitrosopyrrolidine		97 U	94 U	94 U	47 U
N-Nitro-o-toluidine		97 U	94 U	94 U	47 U

Table 6
Lagoon Water and Sludge Pit Water Analytical Data
September 2008
West Area
Hercules Franklin Facility

Sample ID	Regulatory	LAG-1	LAG-2	LAG-3	SPWW-1
Sample Collection Date	Limit	9/9/2008	9/9/2008	9/9/2008	9/29/2008
Appendix IX Semivolatile Organic Compounds (ug/L), cont.					
Pentachlorobenzene		97 U	94 U	94 U	47 U
Pentachloronitrobenzene		97 U	94 U	94 U	47 U
Pentachlorophenol		490 U	470 U	470 U	240 U
Phenacetin		97 U	94 U	94 U	47 U
Phenanthrene		97 U	94 U	94 U	47 U
Phenol	15	97 U	94 U	94 U	**210**
p-Phenylene diamine		19000 U	19000 U	19000 U	9400 U
Phorate		97 U	94 U	94 U	47 U
2-Picoline		97 U	94 U	94 U	47 U
Pronamide		97 U	94 U	94 U	47 U
Pyrene		97 U	94 U	94 U	47 U
Pyridine		490 U	470 U	470 U	240 U
Safrole, Total		97 U	94 U	94 U	47 U
Sulfotepp		97 U	94 U	94 U	47 U
1,2,4,5-Tetrachlorobenzene		97 U	94 U	94 U	47 U
2,3,4,6-Tetrachlorophenol		97 U	94 U	94 U	47 U
Thionazin		97 U	94 U	94 U	47 U
o-Toluidine		97 U	94 U	94 U	47 U
1,2,4-Trichlorobenzene		97 U	94 U	94 U	47 U
2,4,5-Trichlorophenol		97 U	94 U	94 U	47 U
2,4,6-Trichlorophenol		97 U	94 U	94 U	47 U
o,o',o''-Triethylphosphorothioate		97 U	94 U	94 U	47 U
1,3,5-Trinitrobenzene		97 U	94 U	94 U	47 U
Methyl Phenols,Total		**97**	**150**	**97**	**223**
Tentatively Identified Compounds (ug/L)					
Total Unknown Compounds		**2,542 T J N**	**3,020 T J N**	**3,038 T J N**	**16,860 T J N**
Appendix IX Metals (ug/L)					
Aluminum		**680**	**570**	**710**	**220**
Antimony		20 U	20 U	20 U	20 U
Arsenic	150	**4.0 J B**	**7.0 J B**	**3.3 J B**	**5.1 J**
Barium		10 U	10 U	10 U	**17**
Beryllium		4 U	4 U	4 U	4 U
Cadmium	1.0	5 U	5 U	5 U	**0.84 J**
Chromium	16 Hex. Max	**2.3 J**	**1.9 J**	**2.1 J**	**1.3 J**
Cobalt		10 U	10 U	10 U	10 U
Copper	52 Maximum	20 U	20 U	**2.3 J**	**18 J**
Iron		**1,200**	**1,200**	**1,200**	**760**

Lead		3 U	3 U	2.9 J	3 U
Manganese		8.5 J	11	10	180
Selenium		10 U	10 U	10 U	10 U
Silver		10 U	10 U	10 U	10 U
Thallium		25 U	25 U	25 U	4.6 J
Tin		50 U	50 U	50 U	4.2 J
Vanadium		6.4 J	5.4 J	6.7 J	8.3 J
Zinc	29	22	12 J	19 J	47
Mercury		0.2 U	0.2 U	0.2 U	0.2 U
Total Petroleum Hydrocarbons (mg/L)					
Diesel Range Organics [C10-C28]	30	160	120	120	110
Gasoline Range Organics (GRO)-C6-C10	30	0.073	0.089	0.082	0.21
PCBs (ug/L)					
PCB-1016		0.94 U	0.94 U	0.97 U	0.94 U
PCB-1221		1.9 U	1.9 U	1.9 U	1.9 U
PCB-1232		0.94 U	0.94 U	0.97 U	0.94 U
PCB-1242		0.94 U	0.94 U	0.97 U	0.94 U
PCB-1248		0.94 U	0.94 U	0.97 U	0.94 U
PCB-1254		0.94 U	0.94 U	0.97 U	0.94 U
PCB-1260		0.94 U	0.94 U	0.97 U	0.94 U
Dioxins/Furans (ng/L)					
2,3,7,8-TCDD		ND	ND	ND	ND
Total TCDD		ND	ND	ND	ND
Total PeCDD		ND	ND	ND	ND
Total HxCDD		ND	ND	ND	ND
Total TCDF		ND	ND	ND	ND
Total PeCDF		ND	ND	ND	ND
Total HxCDF		ND	ND	ND	ND

Table 6
Lagoon Water and Sludge Pit Water Analytical Data
September 2008
West Area
Hercules Franklin Facility

Sample ID	Regulatory	LAG-1	LAG-2	LAG-3	SPWW-1
Sample Collection Date	Limit	9/9/2008	9/9/2008	9/9/2008	9/29/2008
Other Parameters (mg/L)					
TSS	**172 / 500**	**110**	**74**	**120**	**12**
Total Solids		NA	NA	NA	**1100**
COD		**1500**	**1400**	**1500**	**850**
BOD	**438 / 825**	**270**	**280**	**250**	**220**
Phosphorus	**2.0 Average**	**0.52**	**0.59**	**0.49**	**0.65**
Phenolics, Total Recoverable		**0.44**	**0.7**	**0.39**	**1.4**
Nitrogen, Total		**10**	**11**	**10**	**2.3**
Nitrate Nitrite as N		NA	NA	NA	0.5 U
Reactive Cyanide & Sulfide (mg/Kg)					
Cyanide, Reactive		100 U	100 U	100 U	100 U
Sulfide, Reactive		50 U	50 U	50 U	50 U
pH (SU)	**6.0 - 9.0**	7.17 H	7 H	6.83 H	7.03 H
Flashpoint (Degrees F)		>140	>140	>140	140

Notes:
ug/L = micrograms per liter
mg/L = milligrams per liter
ng/L = nanograms per liter
mg/kg = milligrams per kilogram
U = Indicates the analyte was analyzed for but not detected
J = Result is less than the reporting limit but greater than or equal to the MDL and the concentration is an approximate value
B = Compound was found in the blank and sample
T = Result is a tentatively identified compound and an estimated value
N = This flag indicates the presumptive evidence of a compound
H = Sample was prepped or analyzed beyond the specified holding time
ND = Not Detected
SU = Standard Units
F = Fahrenheit
438 / 825 - Limits in red are monthly avearge/maximum for Outfall 201 VPDES permit limits
2.0 Average - Limits in pink are for Outfall 002 VPDES permit limits
30 - Limits in green are maximum applicable wastewater limits not to be exceeded at Outfall 002

Sauer,Mark

From: Sauer,Mark
Sent: Monday, August 24, 2009 1:15 PM
To: 'Sean M Maconaghy'
Subject: RE: VPDES permit modification

Thank you Sean, I will put monitoring and appropriate effluent limitations on the discharge and will treat it as another internal outfall to 002, will probably call it outfall 202 or something like that and will have monitoring take place after the pretreatment and before it commingles with the water in the canal. Thanks.

You are correct about the additional storm water outfall; I found that as I was looking through my notes today.

Talk to you soon.

From: Sean M Maconaghy [mailto:smmaconaghy@ashland.com]
Sent: Monday, August 24, 2009 12:35 PM
To: Sauer,Mark
Subject: Re: VPDES permit modification

Mark,

The water from lagoon will be pre-treated prior to discharge using a portable carbon/sand filtration system. The dscharge point is anticipated to be between the existing 201 Outfall and the 002 Outfall.

The other issues you listed are correct. I believe we also asked to have a stormwater outfall added near the Vul-Cup process and re-establish the 001 stormwater outfall based on comments form the USEPA from our 2005 NEIC Inspection.

Take Two, Take Care and Be Safe,

Sean M. Maconaghy
EHS Manager
Ashland Hercules Water Technologies - Franklin, VA

Phone: 757-562-3121 ext. 176
e-Mail: smmaconaghy@ashland.com

"Sauer,Mark" <Mark.Sauer@deq.virginia.gov>

08/24/2009 10:13 AM

To Sean M Maconaghy/Franklin/NA/Herc@Ashland

cc

Subject VPDES permit modification

Sean –

I am working on the VPDES permit modification for the Franklin plant. The mod will incorporate a number of different issues. One of them is the wastewater holing lagoon and sludge pit dewatering and treating and discharging that water. Cathy Warner's last letter to me indicated that the water will either be sent through the treatment system of through portable treatment, but the specific route of treatment and discharge has not been decided. I'm looking for an update on this so I can put it into the permit, which is the most likely scenario, to go through the treatment system, or to go through portable treatment and then directly to outfall 002? This will affect where I put monitoring requirements and effluent limitations.

Right now, I see the permit mod encompassing the following:

Change in operation and change in flow to outfall 201 due to cessation of tall oil production – this will change the categorical limits for BOD and TSS at 201.

Adjusting toxicity procedures to add CACl (adjusting hardness) in the lab rather than the discharge

Adding wastewater lagoon and sludge pit dewatering to outfall 201 and/or 002.

Is there anything else this modification should include?

Thank you.

Mark Sauer
DEQ-TRO Water Permits Section
757-518-2105
mark.sauer@deq.virginia.gov

Sauer,Mark

From: Sauer,Mark
Sent: Thursday, October 22, 2009 10:30 AM
To: 'Sean M Maconaghy'
Cc: Austin,Deanna
Subject: WET hardness

Sean –

Deanna and I are discussing the hardness issue. The following is an excerpt from the fact sheet that discusses rationales for monitoring conditions at outfall 002, this makes it pretty tough to justify discontinuing CACl addition in the effluent and adding only to the sample in the lab. It was Hercules' own TRE work that determined that hardness was contributing to toxicity, and we actually included the Acute WET limit instead of a hardness minimum limit in the permit. I've also done some research on EPA guidance and most of the references I've found indicate that manipulating the effluent by adjusting hardness in the lab, but not in the discharge, probably would not be acceptable.

We'll continue to discuss this here, but we may not be able to approve adjusting hardness in the lab, and you may need to continue to adjust hardness in the discharge if that is contributing to toxicity. You may be able to run some samples of un-adjusted effluent to see if acute toxicity is present in unadjusted samples.

Effluent Hardness:	24 hr. composite sample at a frequency of once per month. Monthly average reporting only. Previous effluent hardness data, TRE data, and toxicity data indicate that an effluent hardness value of 60 mg/l, supported by TRE work, is sufficient to protect against acute toxicity. As a result, it was recommended that a minimum hardness limitation of 60 mg/l $CaCO_3$ be established for this discharge. However, this number is not included in the permit as a limit, the requirement is for reporting only. This is based on BPJ. In order to protect against acute toxicity, an acute WET limit is included in the permit, negating the need for any harness limit.

Mark Sauer
DEQ-TRO Water Permits Section
757-518-2105
mark.sauer@deq.virginia.gov

Sauer,Mark

From: Sauer,Mark
Sent: Friday, October 23, 2009 8:40 AM
To: 'Sean M Maconaghy'
Subject: rough draft - modified permit
Attachments: MHS-Hercules mod permit 2009.doc; Ashland Hercules limits rationale.doc

Sean –

Attached is a rough draft of the modified VPDES permit, and the rationales for the changes at 201. Below is a list of the changes I am adding to the permit with this modification and the wording I will be using for doing the sampling during the remainder of the permit term at the new storm water outfalls and looking at representative monitoring at permit reissuance in 2012. You will also note in the permit that I added the wording in the WET section (Section B) addressing the UV-treatment of toxicity test samples. I also have added dissolved oxygen limit and a special condition for the RO unit. This is tentative at this point, but it gives you an idea of what to expect with the addition of the RO unit.

The permit modification in 2009 consists of the following:

1. Recalculating federal guideline effluent limitations for outfall 201 based on the deletion of the tall oil process at the facility. Limits are presented in Attachment 5; rationales and calculations are presented in Attachment 6.
2. Reclassifying the Aquapel process from subcategory F to subcategory C under 40 CFR 454 and recalculating effluent guideline limits based on the reclassification. Limits are presented in Attachment 5; rationales and calculations are presented in Attachment 6.
3. Adding a new internal outfall 202 to address the discharge of wastewater holding lagoon and sludge pit dewatering under an EPA-lead RCRA corrective action. Limits are presented in Attachment 5; rationales and calculations are presented in Attachment 6.
4. Adding three new storm water outfalls and associated monitoring based on inspections at the facility identifying the storm water discharges.
5. Adding and revising Part I.D. storm water conditions to address the new storm water outfalls.
6. Adding and revising language in the WET limit section to address the effect of biological pathogens on the test organisms.
7. Adding wording to the O&M Manual Special Condition to require the Manual to address proper procedures for solvent handling and storage, per a request from EPA. Adding wording to the O&M Manual Special Condition to address the new reverse osmosis system at the facility.
8. Adding the discharge of reject water and occasional backwash water from a reverse osmosis unit to the sources contributing to outfall 002. This discharge will enter the discharge ditch prior to the sampling point for outfall 002 at a rate of approximately 65,000 gallons per day. Additional limitations for dissolved oxygen at outfall 002 are included in the permit in accordance with Agency guidance and water quality standards.

9. Adding a special condition to address any chemicals that may be used in the reverse osmosis system.

There are no changes to effluent limitations or monitoring conditions for outfalls 902 and 003 with this modification. There are no changes to Part C, Other Special Conditions, with this modification.

Based on the General Permit Regulation for Storm Water Associated with Industrial Activity, specifically Sector C, Chemical and Allied Products Manufacturing, 9 VAC 25-151-110, there are no effluent limitations or benchmark monitoring requirements for storm water at facilities in the SIC codes 2861-2869 or 2899. There are specific special conditions associated with this Sector category, which will be addressed under the Special Conditions section in the permit and fact sheet.

Mark Sauer
DEQ-TRO Water Permits Section
757-518-2105
mark.sauer@deq.virginia.gov

Sauer,Mark

From: Sean M Maconaghy [smmaconaghy@ashland.com]
Sent: Monday, October 26, 2009 5:01 PM
To: Sauer,Mark
Cc: cwarner@oneenv.com
Subject: Fw: Updated Form 2C
Attachments: 09262009 Updated Form 2C.xls; 09262009 RO Unit Map.pdf

Mark,

Resending. Please see below.

Take Two, Take Care and Be Safe,

Sean M. Maconaghy
EHS Manager
Ashland Hercules Water Technologies - Franklin, VA

Phone: 757-562-3121 ext. 176
e-Mail: smmaconaghy@ashland.com

----- Forwarded by Sean M Maconaghy/Franklin/NA/Herc on 10/26/2009 05:00 PM -----

Sean M Maconaghy/Franklin/NA/Herc

10/26/2009 04:54 PM

To Mark Sauer
cc cwarner@oneenv.com
Subject Updated Form 2C

Mark,

Attached please find the updated Form 2C which includes the water flows for the RO Unit per our discussion last week. I am also including a Map of the RO Unit loacation and tie-in to the outfall. I am still waiting for Seimans to get back to me regarding the frequency and volume of water from backwashing oprations therefore I don't have the cover letter ready as of yet. I will send the cover letter as soon as I hear from Seimans.

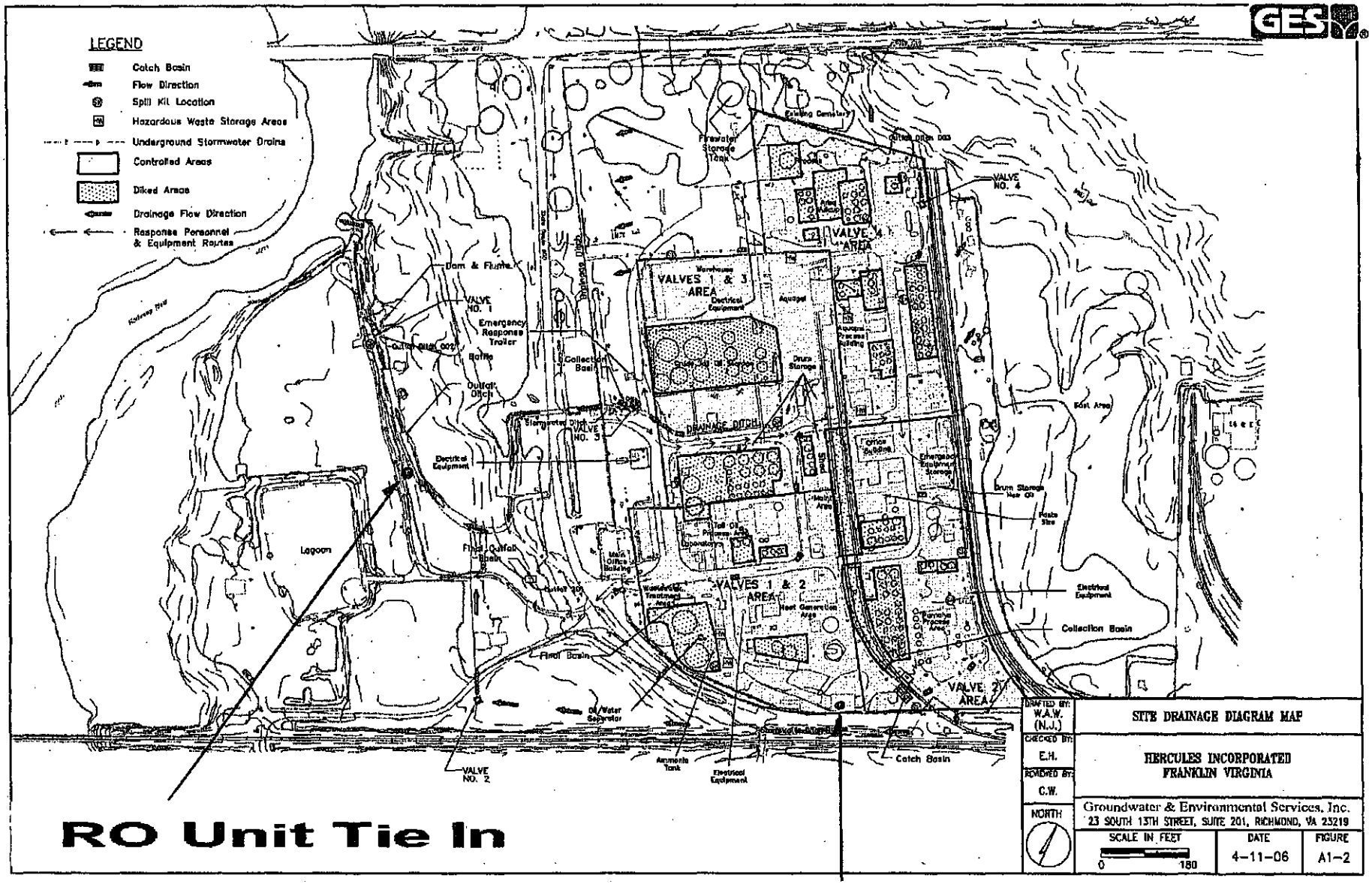
Please let me know if you need anything else.

Take Two, Take Care and Be Safe,

Sean M. Maconaghy

EPA ID NUMBER
VAD0003122165

Form 2C NPDES	EPA	U.S. Environmental Protection Agency Application for Permit to Discharge Wastewater Existing Manufacturing, Commercial, Mining and Silvicultural Operations		
II. Flows, Sources of Pollution, and Treatment Technologies				
Outfalling (list)	Operation(s) Contributing Flow		Treatment	
	Operation	Average Flow		Codes from Table 2C-1
201/002	Aquapel Process SIC Code 2899	135,000 gpd	Wastewater is partially neutralized in a 7,400 gallon basin (retention time 0.9 hr) and pumped to a neutralization system consisting of a 20,000 gal tank for HCl storage and/or pretreatment and a 750 gallon tank & a 3,000 gal tank in series to Outfall 201.	2K 4A
201/002	Pamolyn Process SIC Code 2861 Tank Car Unloading Area SIC Code 2861	8,800 gpd 1,400 gpd	Light oil is skimmed from wastewater in a 60 Mgal basin (r.t. = 6 days), pumped to an oil/water separator where additional oil is removed before flowing to a 624,000 gal Stormwater tank and/or a 250,000 gallon equalization tank. It is neutralized in-line using soda ash, pumped to a 225,000 gal Aeration Tank with integral clarifier (r.t. 5 days), then to a 20,000 gal polishing clarifier and discharged to Outfall 201. Waste sludge is de-watered on a belt filter press for disposal at a landfill. Purge water from groundwater sampling activities. Groundwater from dewatering activities.	1H 2K 3A 1U 4A 5C 5Q
201/002	Power Area SIC Code 2861	116,000 gpd	Non-Contact Cooling Water; not treated. Discharged to 201 then 002.	4A
002	Power Area SIC Code 2861	90,000 gpd	Reverse Osmosis unit reject water discharge.	4A
201/002 or 002	Wastewater Holding Lagoon, Sludge Pit Remediation Water	Flow as necessary to dewater the wastewater holding lagoon and sludge pits during remediation.	Treatment as necessary to meet discharge limits	4A



RO Unit Tie In

RO Unit Location

Sauer,Mark

From: Silvia,Lisa
Sent: Thursday, October 29, 2009 8:38 AM
To: Sauer,Mark
Cc: McConathy,James
Subject: FW: FW: VA0003433 Hercules Franklin for review

I forwarded John Brandt's email of yesterday to Barbara Smith for her info under corrective action concerns. Here's her cudos back to you.....

Thanks much!!
Lisa Silvia
VDEQ-TRO
(757) 518-2175
Lisa.Silvia@deq.virginia.gov
-----Original Message-----
From: Smith.Barbara@epamail.epa.gov [mailto:Smith.Barbara@epamail.epa.gov]
Sent: Wednesday, October 28, 2009 5:27 PM
To: Silvia,Lisa
Subject: Re: FW: VA0003433 Hercules Franklin for review

Lisa --- thanks for forwarding the draft permit. It's good news. Once it's final, Ashland-Hercules can proceed with their water and sludge removal at the lagoon. Tell Mark Sauer that I appreciate his good work. Hercules and I were pressing on him to get the permit done. Looks good.

Barbara Smith
US EPA - Region 3
1650 Arch Street (3LC20)
Philadelphia, PA 19103-2029
Ph. (215) 814-5786

Sauer,Mark

From: Sauer,Mark
Sent: Thursday, October 29, 2009 9:29 AM
To: 'Sean M Maconaghy'
Subject: VPDES draft permit for review
Attachments: MHS-Hercules mod permit 2009.doc

Sean –

I will be sending out the official copy of the draft VPDES permit modification for your review by mail tomorrow. It will be addressed to Mr. Chapman. Attached is the final draft copy of the permit. It is pretty much the same as the copy I sent you the other day. Along with the draft permit, I'll send the entire fact sheet in the mail showing all the rationales for every change we made in the permit, and even the changes we didn't make such as the hardness adjustment.

The draft permit is at EPA now for their review. Once I receive their comments and Ashland/Hercules comments and authorization to go to public notice, the next step will be to send the permit to the newspaper to public notice it for 30 days for public comments. Once that step is complete and all comments are resolved, we can issue the modified permit. Thanks.

Mark Sauer
DEQ-TRO Water Permits Section
757-518-2105
mark.sauer@deq.virginia.gov

ASHLAND.

Ashland Hercules Water Technologies

27123 Shady Brook Trail
Courtland, VA 23837
Tel: 757-562-3121
Fax: 757-562-5660

November 20, 2009

CERTIFIED MAIL RETURN RECIEPT REQUESTED
(7008 3230 0002 9759 7666)

Mr. Mark H. Sauer
Water Permits Engineer – Technical Coordinator
Virginia DEQ – Tidewater Regional Office
5636 Southern Boulevard
Virginia Beach, Virginia 23462

Re: Permit No. VA0003433
Draft Permit Comments

Dear Mr. Sauer;

The Ashland Hercules Water Technologies (AHWT) Franklin received a copy of the Draft VPDES Permit No. VA0003433 modification on Monday, November 2, 2009, and has conducted a review of the documents provided. Based on our review of the draft permit modification the following comments are respectively submitted for consideration by the agency;

1. Page 1 of 35 includes a limitation and monitoring requirement for dissolved oxygen (DO) of 4 mg/l at the 002 Outfall. AHWT understands the need for this requirement with the addition of the reverse osmosis system discharge however; it was unclear how the agency arrived at the proposed limit. AHWT would like to request a limit of 2 mg/l if there is flexibility to establish a lower limit since this will be a new parameter that has never been included in our limitations and monitoring.

2. Page 3 of 35 includes the limitations and monitoring requirements for Outfall 202 which is to be located at the discharge of the dewatering system for the wastewater lagoon and sludge pit. AHWT would like the agency to include language stating sampling is only required during periods when dewatering activities are occurring and discharge is present.

AHWT understands that we would still be obligated to submit DMRs under "no discharge" as noted in the draft language.

AHWT would also like to requests language be incorporated to allow, the water from the lagoon and sludge pit dewatering to be discharged to the existing site wastewater treatment plant if necessary for treatment in lieu of a skid mounted unit if necessary or in conjunction with the skid mounted unit to be used for dewatering. Ashland would then request that if this was initiated that the parameters requiring monitoring at outfall 202 would be monitored at the wastewater treatment plant outfall.

3. Page 9 of 35 – Includes a requirement to submit a revised O&M Manual to the VADEQ "No later than May 15, 2010" AHWT would like to request that the due date for the revised O&M Manual read as "No later than 6-months after issuance of the revised permit".

4. Page 20 of 35 – Includes a requirement to update the SWPPP to incorporate Best Management Practices in Part I.C.13 by March 1, 2008. AHWT believes that the agency intended to have this read March 1, 2010, but would like to request that the language read as "No later than 6-months after issuance of the revised permit".

AHWT would like to thank the agency for the opportunity to review the draft permit and submit comments prior to the public comment period. If you should have any questions pertaining to this issue or require additional information please feel free to contact me via telephone at 757-562-3121 ext. 176 or via e-Mail at smmaconaghy@ashland.com.

Sincerely,

Sean M. Maconaghy
EHS Manager
AHWT - Franklin

Sauer,Mark

From: Sauer,Mark
Sent: Monday, November 23, 2009 8:39 AM
To: 'Sean M Maconaghy'
Subject: RE: Comments on Draft VPDES Permit

Sean –

I received you comments, and will be working on them this week. I'll be sending a response by letter this week or early next week. I think we can work with AHWT on all the requests except the D.O. limit at 002. That must remain at a minimum of 4.0 mg/l. I thought we explained it in the fact sheet, but it might not have been clear enough. The Water Quality Standards for the Chowan River Basin require a minimum D.O. of 4.0 mg/l. The regulation for discharges from potable water RO units require a minimum of 4.0 mg/l, so we are bound to that limit to meet the requirements.

The dates for the O&M Manual and the SWPPP have to be fixed dates, but we can set the date at a date six months after we expect the permit to be issued.

The outfall 202/201 treatment scenario is a little tricky to include the proper wording in the permit, but we can work something out.

Thank you.

From: Sean M Maconaghy [mailto:smmaconaghy@ashland.com]
Sent: Friday, November 20, 2009 3:34 PM
To: Sauer,Mark
Subject: Comments on Draft VPDES Permit

Mark,

Attached please find a pdf copy of the comments on the Draft VPDES Permit for the Ashland Hercules Water Technologies (AHWT) - Franklin Site. I am having the signed original sent to your attention via Certified Mail. I will be out of the office all next week and will respond to any questions or comments upon my return November 30th if you have any. Have a great Thanksgiving !!!

Take Two, Take Care and Be Safe,

Sean M. Maconaghy
EHS Manager
Ashland Hercules Water Technologies - Franklin, VA

Phone: 757-562-3121 ext. 176
e-Mail: smmaconaghy@ashland.com

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
TIDEWATER REGIONAL OFFICE
5636 Southern Boulevard, Virginia Beach, Virginia 23462
(757) 518-2000 Fax (757) 518-2103
www.deq.virginia.gov

L. Preston Bryant, Jr
Secretary of Natural Resources

David K. Paylor
Director

Francis L. Daniel
Regional Director

November 25, 2009

Mr. Sean M. Maconaghy
EHS Manager
AHWT - Franklin
27123 Shady Brook Trail
Courtland, VA 23837

Re: VPDES Permit VA0003433
Draft Permit Comments

Dear Mr. Maconaghy;

I have reviewed your letter of November 20, 2009 providing comments on the referenced draft permit. I would like to address your comments in the order in which you presented them in your letter.

1. The dissolved oxygen limitation of 4.0 mg/l minimum is required by the Water Quality Standards for the Chowan River Basin and by the regulations for discharges from reverse osmosis treatment units. Here is an excerpt from the fact sheet that should have explained the rationale for this limit.

> Based on water quality standards at 9 VAC 25-260-50, numerical criteria for dissolved oxygen et al, dissolved oxygen in the Chowan Basin must be maintained at a minimum of 4.0 mg/l. Based on regulation 9 VAC 25-860-10 et seq, the regulation for potable water treatment plants, RO systems have the potential to affect dissolved oxygen. The regulation requires a minimum dissolved oxygen limitation of 4.0 mg/l for discharges from RO units.

Based on these regulations, we cannot include a limit in a VPDES permit with a discharge to the Nottoway River of anything less stringent than 4.0 mg/l. We are bound to that limit for the discharge of the R.O. unit. The only option we have is to apply that limit to the discharge from the R.O. unit itself as an internal outfall. However, if we do that, we also have to apply all other limits from 9 VAC 25-860-10 et seq to that internal discharge, which would include meeting pH limits and toxics monitoring on that outfall. I believe including a dissolved oxygen limit on the external outfall 002 is the best option for Hercules to meet required permit effluent limitations and be within the applicable regulations.

2. The permit can be worded so that outfall 202 is listed as the discharge from the dewatering system for the wastewater lagoon and the sludge pit and sampling is required only when there is a discharge from the dewatering system. This wording will be added to the Page 3 of 35, just before the language "Upon issuance of the permit...."

   Since outfall 202 is listed as the dewatering from the wastewater lagoon and the sludge pit, it is not specific to separate, portable treatment. You may use the facility's treatment system for treating the wastewater. If the existing system is used, we will still utilize two separate outfall numbers and two separate DMR's for outfalls 201 and 202. When the existing system is used for treatment, two separate sets of samples must be collected and analyzed for the parameters listed under outfall 201 and under 202, and reported on the respective DMR's. I will include language in the fact sheet stating this requirement.

   Revised permit pages and fact sheet pages addressing these discharges are included as attachments to this letter.

3. and 4. Due dates in VPDES permits are required to be fixed dates to ensure proper compliance tracking. I will adjust the due dates in the permit for the revised O&M Manual and the revised SWPPP to be August 15, 2010. This should be at least six months after we anticipate the modified permit being issued. If circumstances delay the permit processing any significant amount of time, I will adjust the dates to be six months after the modified permit is issued. Revised permit pages are included as attachments to this letter.

Thank you for your review and comments. At this time, I believe we have addressed your comments and concerns as best as possible, and would like to proceed to publishing the public notice in the local newspaper. Please inform me by email or letter if this is acceptable to AHWT. If you have any questions, or need additional information, please contact me at the above address, or by telephone at (757) 518-2105.

Sincerely,

Mark H. Sauer
Permit Engineer

Cc: TRO file

PART I

A. LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning with the permit's modification date and lasting until the permit's expiration date, the permittee is authorized to discharge from outfall(s): 202 (wastewater lagoon and sludge pit dewatering).

Such discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS [a]	
	Monthly Average	Weekly Average	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NL	NA	NA	NL	1/Week	Measured
pH (S.U.)	NA	NA	6.0	9.0	1/Week	Grab
BOD_5 (mg/l)	157	NA	NA	296	1/Week	Grab
Total Suspended Solids (mg/l)	69	NA	NA	201	1/Week	Grab
Total Petroleum Hydrocarbons (mg/l)	30	NA	NA	30	1/Week	Grab
Total Nitrogen (mg/l)	NA	NA	NA	NL	1/Month	Grab
Total Phosphorus (mg/l)	NA	NA	NA	NL	1/Month	Grab
Benzene (ug/l)	NA	NA	NA	50	1/Month	Grab
Toluene (ug/l)	NA	NA	NA	175	1/Month	Grab
P Cresol (ug/l)	NA	NA	NA	14	1/Month	Grab
Phenol (ug/l)	NA	NA	NA	15	1/Month	Grab
Total Recoverable Cadmium (ug/l)	NA	NA	NA	3.9	1/Month	Grab

NA = Not Applicable.
NL = No limitation, however, reporting is required.

→ The above monitoring requirements are effective at times when discharges from wastewater lagoon or sludge pit dewatering occur. Effective with the modification date of the permit, Discharge Monitoring Reports (DMRs) shall be submitted to the regional office at the frequency required by the permit regardless of whether an actual discharge occurs. In the event that there is no discharge for the monitoring period, then "no discharge" shall be reported on the DMR.

→ [a] Outfall 202 shall be sampled from the dewatering treatment system or from the plant combined wastewater treatment system prior to mixing with other non-process flow.

2. There shall be no discharge of floating solids or visible foam in other than trace amounts.

contacts; procedures for reporting and responding to any spills/overflows/ treatment works upsets; a copy of the VPDES/VPA permit; and copies of all reporting forms. If the O&M Manual is no longer current, a revised O&M Manual shall be submitted for approval. Once approved, this revised manual shall become an enforceable condition of this permit. Future changes to the facility must be addressed by the submittal of a revised O & M Manual.

Revised Manual Due: No later than August 15, 2010

5. Notification Levels

The permittee shall notify the Department as soon as they know or have reason to believe:

a. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in this permit, if that discharge will exceed the highest of the following notification levels:

(1) One hundred micrograms per liter (100 ug/l);
(2) Two hundred micrograms per liter (200 ug/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/l) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/l) for antimony;
(3) Five (5) times the maximum concentration value reported for that pollutant in the permit application; or
(4) The level established by the State Water Control Board.

b. That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in this permit, if that discharge will exceed the highest of the following notification levels:

(1) Five hundred micrograms per liter (500 ug/l);
(2) One milligram per liter (1 mg/l) for antimony;
(3) Ten (10) times the maximum concentration value reported for that pollutant in the permit application.
(4) The level established by the State Water Control Board.

under Section 311 of the Clean Water Act or best management practices (BMP) programs otherwise required for the facility provided that the incorporated plan meets or exceeds the SWP3 requirements of this section. If an erosion and sediment control plan is being incorporated by reference, it shall have been approved by the locality in which the activity is to occur or by another appropriate plan approving authority authorized under the Virginia Erosion and Sediment Control Regulation 4 VAC 50-30-10 et seq. All plans incorporated by reference into the SWP3 become enforceable under this permit.

a. Deadlines for SWP3 Preparation and Compliance

Existing Facilities

The SWP3 which was previously prepared and implemented shall be complied with, and continually updated as needed in accordance with sections b., c., d. and e. below.

The permittee shall update the SWPPP to incorporate Best Management Practices in Part I.C.13. above by March 1, 2008; and to incorporate changes addressed by the permit modification by August 15, 2010.

(1) Measures That Require Construction

In cases where construction is necessary to implement measures required by the SWP3, the SWP3 shall contain a schedule that provides compliance with the plan as expeditiously as practicable, but no later than 3 years after the effective date of the permit. Where a construction compliance schedule is included in the SWP3, the schedule shall include appropriate nonstructural and/or temporary controls to be implemented in the affected portion(s) of the facility prior to completion of the permanent control measure.

b. Signature and SWP3 Review

(1) Signature/Location

The SWP3 shall be signed in accordance with Part II.K. of this permit and be retained onsite at the facility which generates the storm water discharge in accordance with Part II.B. of this permit. For inactive facilities, the SWP3 may be kept at the nearest office of the permittee.

(2) Availability

Outfall 202

This new internal outfall will receive discharge from the treatment of wastewater holding lagoon and sludge pit dewatering in conjunction with an EPA-lead RCRA facility corrective action plan (CAP). Part of the CAP involves dewatering the existing wastewater lagoon and sludge pit. The wastewater from these structures will be treated either by portable treatment and discharged to the discharge ditch leading to outfall 002 or at the existing plant combined wastewater treatment system and discharged to the outfall 201 location.

The decision was made based on discussions with EPA Permitting and RCRA staff to require treatment and to require the discharge from this operation to meet effluent limitations prior to entering the ditch rather than applying the limitations to outfall 002 to ensure proper treatment and minimize the effect of dilution on the discharge from these CAP activities.

The permittee may elect to treat the wastewater lagoon and sludge pit dewatering through the existing facility treatment system rather than through a separate portable system. Should the permittee elect to treat the dewatering discharges in this manner, separate samples will be collected for outfall 201 and outfall 202 and the samples must be analyzed separately and reported separately on the respective outfall 201 and outfall 202 DMR's. Sampling for outfall 202 will only be required at times when dewatering discharges are occurring.

Effluent limitations are based on review of data supplied by the permittee during the RCRA CAP process, water quality standards, effluent guidelines for the industry and best professional judgment (BPJ) to protect water quality. See Attachment 14 for additional correspondence regarding this discharge. Specific limitations, monitoring requirements and rationales follow.

Flow: No limit, monthly average and daily max, measured at 1/week frequency based on BPJ. This is a standard requirement for industrial permits based on the VPDES permit manual.

pH: Minimum of 6.0 S.U. and maximum of 9.0 S.U. monitored 1/week by grab sample. This is based on BPJ to protect water quality and is typical for VPDES permits for industrial facilities.

BOD: Monthly Average concentration of 157 mg/l and daily max concentration of 296 mg/l monitored 1/week by grab sample. This is based on the federal effluent guidelines 40 CFR 454 subparts D and C and is identical to the concentration limits at the process water internal outfall. This effluent consists of stored process wastewater and process sludge pit dewatering, and applying the guideline limitations for concentration is appropriate. Since the discharges at this internal outfall is based on treatment of stored wastewater and not based on production, applying mass limitations to this discharge is not appropriate.

TSS: Monthly Average concentration of 69 mg/l and daily max concentration of 201 mg/l monitored 1/week by grab sample. This is based on the federal effluent guidelines 40 CFR 454 subparts D and C and is identical to the concentration limits at the process water internal

Sauer,Mark

From: Sauer,Mark
Sent: Monday, November 30, 2009 10:03 AM
To: 'Sean M Maconaghy'
Subject: RE: response to comments

Thanks Sean. I will send the public notice to the newspaper this week.

From: Sean M Maconaghy [mailto:smmaconaghy@ashland.com]
Sent: Monday, November 30, 2009 9:59 AM
To: Sauer,Mark
Subject: Re: response to comments

Mark,

Hope you had a good Thanksgiving weekend. Thank you for your response to our comments. I am fine with what you have proposed and o.k. with the DO limit (had to ask for legal department's sake).

Take Two, Take Care and Be Safe,

Sean M. Maconaghy
EHS Manager
Ashland Hercules Water Technologies - Franklin, VA

Phone: 757-562-3121 ext. 176
e-Mail: smmaconaghy@ashland.com

"Sauer,Mark" <Mark.Sauer@deq.virginia.gov>

11/25/2009 08:59 AM

To Sean M Maconaghy/Franklin/NA/Herc@Ashland

cc

Subject response to comments

Sean –

Attached is our response to your comments on the draft VPDES permit. A hard copy is also in the mail. I believe we have addressed all your concerns to the best that we can. Please contact me once you review the response so that we can discuss them.

ATTACHMENT 15

PUBLIC PARTICIPATION

Blackwater/Nottoway **RIVERKEEPER®** Program
P.O. Box 44 Sedley, Va. 23878-2513
E-mail: blknotkpr@earthlink.net
www.blackwaternottoway.com
757-562-5173

135 Members Strong

December 4, 2009

Dear DEQ Tidewater Office,

I am writing you to applaud the recent change in the Hercules VPDES permit # VA0003433 for the Hercules Chemical plant on The Nottoway River in Southampton County. As Riverkeeper for that waterbody I have noticed over the years the negative affects the high BOD effluent from the plant has had on the fish in that mixing zone. This is especially true in summer low flow situations. The new minimum D.O. limits on the facility along with tighter TSS and DOD limits will no doubt improve aquatic life and the overall health of this river. This river is very important to me, as I have practically lived on it all my life. It is good to see something positive being done for the river and I pray that DEQ will continue to mandate reasonable tighter controls in the future work with me to improve the water quality of my two rivers we call the Nottoway and Blackwater

Thank you,

Jeff Turner
BNRP Riverkeeper